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| EXAMINER |
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| BURCH, MELODY M |

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* TAKAAKI KOMABA, HIROAKI TOKOI, and KOUJI SAKAI

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Appeal 2020-002138
Application 15/025,471
Technology Center 3600

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Before STEFAN STAICOVICI, BRETT C. MARTIN, and
LEE L. STEPINA, *Administrative Patent Judges.*

MARTIN, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1, 3–5, 9, and 11–17. *See* Non-Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Autoliv Nissin Brake Systems Japan Co., Ltd. Appeal Br. 2.

## CLAIMED SUBJECT MATTER

The claims are directed "to a brake fluid pressure control system for a vehicle having a brake-by-wire brake device." Spec. ¶ 1. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1 A brake-by-wire, brake fluid pressure control system for a vehicle comprising:
>
> a master cylinder that is activated by operating a brake activator;
>
> a motor cylinder device that is arranged between the master cylinder and a wheel cylinder and generates a brake hydraulic pressure in response to an operation amount of the brake activator;
>
> a controller that controls for driving the motor cylinder device in relation to brake-by-wire braking operations;
>
> a first brake fluid line that allows the master cylinder to communicate with the wheel cylinder;
>
> a second brake fluid line that is connected to the first brake fluid line and allows the motor cylinder device to communicate with the wheel cylinder; and
>
> a two-position three-way valve that is arranged at a connection point between the first brake fluid line and the second brake fluid line, wherein during brake-by-wire braking operations involving brake hydraulic pressure generated by the motor cylinder device the two-position three-way valve is switchable between a first state in which the master cylinder communicates with the wheel cylinder and the motor cylinder device is shut off from the wheel cylinder and a second state in which the master cylinder is shut off from the wheel cylinder and the motor cylinder device communicates with the wheel cylinder, and
>
> during a brake-by-wire braking operation when operation of the brake activator is released by a driver of the vehicle and power of the motor cylinder device is shut off, the controller switches the two-position three-way valve to the first state to prevent brake fluid from flowing into the second brake fluid line.

REFERENCES

The prior art relied upon by the Examiner is:

| Name | Reference | Date |
|---|---|---|
| Belart | US 4,641,891 | Feb. 10, 1987 |
| Wilber | US 5,320,203 | June 14, 1994 |
| Ganzel | US 6,206,484 B1 | Mar. 27, 2001 |
| Gilles '452 | US 2013/0207452 A1 | Aug. 15, 2013 |
| Kunimichi | JP 2005-022465 | Jan. 27, 2005 |
| Shogo | JP 2010-173471 (A) | Aug. 12, 2010 |
| Gilles '002 | DE 10 2010 020 002 A1 | Nov. 10, 2011 |

REJECTIONS

Claims 1, 3–5, 9, and 11–17 are rejected under 35 U.S.C. § 112(b) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention. Non-Final Act. 2.

Claims 1, 3, 15, and 17 are rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Gilles.[2] Non-Final Act. 5.

Claims 4 and 9 are rejected under 35 U.S.C. § 103 as being unpatentable over Gilles and Kunimichi.[3] Non-Final Act. 7.

Claims 5 and 11 are rejected under 35 U.S.C. § 103 as being unpatentable over Gilles and Wilber. Non-Final Act. 7.

[2] The Examiner utilizes Gilles '002, which is a German reference, as the basis for the rejections, but utilizes Gilles '452, which is the U.S. patent application derived from Gilles '002, presumably because it is in English whereas the German reference is in German. We refer to these references collectively as "Gilles."

[3] The Examiner utilizes an English language translation of the Japanese reference Kunimichi.

Claim 12 is rejected under 35 U.S.C. § 103 as being unpatentable over Gilles, Kunimichi, and Wilber. Non-Final Act. 8.

Claim 13 is rejected under 35 U.S.C. § 103 as being unpatentable over Gilles and Belart. Non-Final Act. 9.

Claim 14 is rejected under 35 U.S.C. § 103 as being unpatentable over Gilles and Ganzel. Non-Final Act. 10.

Claim 16 is rejected under 35 U.S.C. § 103 as being unpatentable over Gilles and Shogo.[4] Non-Final Act. 11.

## OPINION

### *Indefiniteness*

The Examiner asserts that "[t]he phrase [in claim 1] 'a brake-by-wire, brake fluid pressure control system for a vehicle comprising: a master cylinder. . .' is indefinite" because "the instant published application describes the by-wire system and the conventional hydraulic brake system as two separate systems and some of the elements recited in claim 1 form a part of the conventional hydraulic brake system." Non-Final Act. 3. As Appellant points out, however, the claim "is directed to [a] brake fluid pressure control system that includes six components, i.e., a master cylinder, a motor cylinder device, a controller, first and second brake fluid lines and a two-position, three-way valve" and "further defines general BBW braking operations effected by the controller." Appeal Br. 14. In other words, the claim is directed towards the brake fluid pressure control system that is used as part of a brake-by-wire ("BBW") system. In that sense, there are not

[4] The Examiner utilizes an English language translation of the Japanese reference Shogo.

separate BBW and hydraulic systems as alleged by the Examiner, but there is an overall hydraulic control system that acts in response to certain activities of the BBW components. The claim clearly sets forth what elements are part of the system and the alleged confusion lies only with the Examiner's mischaracterization as to what the claims encompass.

The Examiner also finds that "[t]he phrase [in claim 1] 'a brake-by-wire braking operation'. . . is indefinite." Non-Final Act. 3. This is allegedly so because the Examiner finds confusion as to which BBW operation is then being referenced in claim 16 due to the additional presence in claim 1 of "brake-by-wire braking operations." *Id.* Claim 16, however does not merely recite "the brake-by-wire operation" of claim 1 generically, but elaborates that it is the BBW braking operation "during which the controller switches the two-position three-way valve to the first state." As such, it is clear that the reference in claim 16 is to the "a brake-by-wire braking operation" limitation recited at the end of claim 1 and not the general "brake-by-wire braking operations" limitation recited earlier.

Regarding claim 17, the Examiner takes issue with the fact that the Specification describes a situation that appears to conflict with the claim language. Although the Specification may describe a different situation in which the switching occurs, this is described as an alternative embodiment. Paragraph 89 of the Specification-as-filed corresponds to paragraph 96 cited by the Examiner. Paragraph 87 of the Specification-as-filed explains that "[t]he brake fluid pressure control system for a vehicle 10a shown in FIGS. 5 and 6 is different from that according to the embodiment as described above on the point that a pressure sensor P" operates in a certain way. As such, the allegedly conflicting language of claim 17 merely describes a

different embodiment than what is claimed. Accordingly, we do not sustain the Examiner's indefiniteness rejection.

*Obviousness*

All of the Examiner's rejections rely in some way or another on Gilles and the Examiner's interpretation thereof. According to the Examiner, Gilles teaches the claimed "during a brake-by-wire operation, as best understood, when operation of the brake activator is released by a driver of the vehicle and power of the motor cylinder device is shut off, the controller switches the two-position three-way valve (120) to the first state." Non-Final Act. 6. The Examiner further explains that "the power off or failsafe state will occur when the brake activator is released by a driver of the vehicle and also when the brake activator is actuated by a driver" and so it meets the claimed "during" aspect. *Id*. at 15.

Appellant argues that the Examiner's interpretations are improper because they "are contradicted by the plain meaning of the claim language and by the actual teachings of Gilles." Appeal Br. 17. Appellant further argues that "claim 1 expressly requires the control operation to occur 'during a brake-by-wire braking operation' and hence does preclude / define over the conventional failsafe operation" in Gilles. *Id.* Appellant further elaborates that "a posita would understand that a BBW does not occur under [Gilles'] failsafe conditions" because the triggering event in Gilles is a system failure, not a release of the brake activator by the driver. Appeal Br. 18. We agree with Appellant.

When read properly, the claim language at issue relates to a triggering event that causes the claimed switching of the valve. This is claimed to occur "during a brake-by-wire operation" and "when operation of the brake activator is released by a driver." In this manner it is not intended to merely

happen while those particular conditions exist, but it is claimed such that the switching occurs during the claimed operation when the activator is released. As such, this is the triggering event, not merely a system failure as taught in Gilles. It does not matter that Gilles' system failure may occur at the same time as the activator is released by the driver because Gilles in not reacting to the activator release, but the system failure. Furthermore, Appellant is correct that Gilles switching occurs during a failsafe condition, which one of skill in the art would understand not to be the same as occurring during a brake-by-wire operation.

The main flaw with the Examiner's assessment is that it appears to ignore the prosecution history of this application. As Appellant has noted, Appellant discovered an issue that can occur during normal brake-by-wire applications that "may make a driver have a different pedal feeling for the brake pedal to feel discomfort." Spec. ¶ 6. Appellant admittedly overcomes this by performing functions that are normally performed during a failsafe operation, such as that taught in Gilles. Appellant does not appear to dispute that Gilles teaches the overall functionality of claim 1 as to the switching, but Appellant does contest that Gilles teaches causing this to happen during anything other than a failsafe operation.

It appears that Appellant has made numerous attempts to clarify the invention at issue by making various amendments to the claim language so as to better focus the claims on this enhancement to normal BBW operation outside of a failsafe condition. Given that Appellant has made it clear that the amendments were for this purpose, it seems disingenuous for the Examiner to assert that "it is unclear why Appellant amended claim 1 to recently define the power off or fail-safe state as taking place during 'a brake-by-wire operation.'" Ans. 14. Appellant made this amendment in

order to clarify that the switching is occurring during normal operation, rather than a failsafe condition as disclosed in Gilles, and that it is triggered by the driver releasing the brake activator. All of this is done, as discussed above, to address the problem discovered by Appellant of an uncomfortable pedal feeling by the driver that may occur during normal braking operation. Although the switching operation in Gilles may be similar or even the same as disclosed, it does not occur during normal braking operations nor is it triggered by the release of the activator as claimed. Accordingly, we do not sustain the Examiner's rejections, all of which are predicated on this erroneous interpretation of Gilles and independent claim 1.

## CONCLUSION

The Examiner's rejections are REVERSED.

More specifically,

DECISION SUMMARY

| **Claims Rejected** | **35 U.S.C. §** | **Reference(s)/Basis** | **Affirmed** | **Reversed** |
|---|---|---|---|---|
| 1, 3–5, 9, 11–17 | 112(b) | Indefiniteness | | 1, 3–5, 9, 11–17 |
| 1, 3, 15, 17 | 102(a)(1) | Gilles | | 1, 3, 15, 17 |
| 4, 9 | 103 | Gilles, Kunimichi | | 4, 9 |
| 5, 11 | 103 | Gilles, Wilber | | 5, 11 |
| 12 | 103 | Gilles, Kunimichi, Wilber | | 12 |
| 13 | 103 | Gilles, Belart | | 13 |
| 14 | 103 | Gilles, Ganzel | | 14 |
| 16 | 103 | Gilles, Shogo | | 16 |
| **Overall Outcome** | | | | 1, 3–5, 9, 11–17 |

REVERSED