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 JAN HERSCHEL and HANS-FRIEDRICH KRULL

Appeal 2006-2825
Application 10/691,916
Technology Center 3600

Decided: April 24, 2007

Before ANITA PELLMAN GROSS, JENNIFER D. BAHR, and LINDA E. HORNER, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Jan Herschel and Hans-Friedrich Krull (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-10, all the pending claims. We have jurisdiction over this appeal under 35 U.S.C. § 6.

Appellants invented "a braking device for industrial trucks by means of which the vehicle can be automatically braked if a malfunction of vehicle operation occurs, independently of the usual braking action" (Specification 1:26-28). By way of example, Appellants point out that a vehicle equipped with an electric steering mechanism can no longer be steered if a power failure or other trouble occurs; in such cases, some means must be provided to ensure that the vehicle is braked in a controlled manner (Specification 1:18-25). Claim 1 is representative of the claimed invention and reads as follows:

> 1. A braking device for an industrial truck, comprising a first hydraulic brake cylinder which is coupled with an actuation member and which is in fluid communication with a hydraulic brake of the truck through a braking conduit, a second hydraulic braking cylinder, and an electrical device supplied with electric current, the braking conduit being led to a hydraulic brake of at least one wheel of the industrial truck, the second braking cylinder being also connected to the hydraulic braking conduit, the second braking cylinder being actuable by an electric magnet, and an emergency stop device being provided which responds to the omission of the electric current, the emergency stop device supplying a braking signal to the electric magnet for the actuation of the second hydraulic braking cylinder in case of omission of the current.

The Examiner relies upon the following as evidence of unpatentability:

Toomey	US 3,765,729	Oct. 16, 1973
Kessler	US 6,079,792	Jun. 27, 2000

Appellants seek review of the Examiner's rejection of claims 1-10 under 35 U.S.C. § 103(a) as unpatentable over Toomey in view of Kessler. The rejection under 35 U.S.C. § 112, second paragraph, has apparently been withdrawn by the Examiner in view of Appellants' amendment filed December 12, 2005, which was entered.

The Examiner provides reasoning in support of the rejection in the Final Rejection (mailed June 16, 2005) and Answer (mailed March 23, 2006). Appellants present opposing arguments in the Brief (filed February 16, 2006) and Reply Brief (filed May 23, 2006).

THE ISSUES

Appellants contend that the Examiner erred in finding that Toomey's first and second brake cylinders are connected to a brake conduit via shuttle valve 22 (Br. 5). According to Appellants, neither the leg 27 (Final Rejection 4; Answer 3) of Toomey's Tee valve 22 nor the threaded connection 28 (Answer 3) can reasonably be considered a brake conduit because both are part of the Tee valve 22, not a brake line or conduit attached to Tee valve 22 (Br. 5-6; Reply Br. 5). Accordingly, the first issue before us is whether the Examiner erred in finding that Toomey's first and second brake master cylinders are connected to a single brake conduit.

Appellants also contend that the combined teachings of Toomey and Kessler do not teach or suggest "an emergency stop device being provided which responds to the omission of the electric current, the emergency stop device supplying a braking signal to the electric magnet for the actuation of the second hydraulic braking cylinder in case of omission of the current" as called for in claim 1 (Reply Br. 6-8). Specifically, according to Appellants,

Toomey's emergency stop device is a mechanical system, not an electrical system, and thus does not actuate the second hydraulic braking cylinder (master cylinder 15) when there is "*an omission of electric current*" (Reply Br. 6-7). In Kessler, according to Appellants, the trailer wheel brake cylinder is actuated by a solenoid, which is actuated by an electric current, not by an omission of electric current, as required in claim 1 (Reply Br. 7). Therefore, the second issue before us is whether the combination of Toomey and Kessler would have suggested "an emergency stop device being provided which responds to the omission of the electric current, the emergency stop device supplying a braking signal to the electric magnet for the actuation of the second hydraulic braking cylinder in case of omission of the current" as called for in claim 1.

FINDINGS OF FACT

FF1. Appellants' second cylinder (brake cylinder 26) is actuated by a lifting magnet 44 connected to rod 46, which is connected via lever 42 to piston rod 36 of brake cylinder 26 (Fig. 2). In the excited or energized state, magnet 44 causes the rod 46 to be fully extended, piston rod 36 to be extended, and thus the brake cylinder 26 to be unstressed (not actuated). In a de-energized state, wherein current is not supplied to the pulling magnet 44, a restoring spring, also designated 44,[1] retracts rod 46 and piston rod 36, thereby pressurizing or actuating brake cylinder 26, which actuates brakes on the wheels (Specification 4:18 to 5:3). Appellants' "signal for de-exciting the

[1] The use of the reference character 44 to designate both the pulling magnet and the restoring spring violates the provision in 37 C.F.R. § 1.84(p)(4)(2006) that "the same reference character must never be used to designate different parts."

electromagnet 44 can be generated by an emergency stop device which is not shown. It ascertains whether there is a malfunction or power failure" (Specification 5:12-14).

FF2. Toomey discloses two conventional dual master cylinders 6, 15 each connected, via Tee valves 22 and threaded connections 28, to the wheel cylinders 29 of each of the four hydraulic brakes (Toomey, col. 2, ll. 1-23 and 59-60).

FF3. Master cylinder 6 is actuated by brake pedal 5 and master cylinder 15 is actuated by emergency brake 14, which may be either a hand brake or a foot brake (Toomey, col. 2, ll. 3-5 and 13-17).

FF4. Toomey's threaded connection 28 is threaded into a threaded bore of leg 27 of Tee valve 22 (Toomey, Fig. 3) and connects Tee valve 22 to wheel cylinder 29 (Toomey, col. 2, ll. 59-60, Figs. 2 and 3). The threaded connection 28 is a braking conduit to which both master cylinder 6 and emergency master cylinder 15 are connected, via Tee valve 22.

FF5. Toomey does not teach or suggest actuation of either master cylinder 6 or 15 by an electric magnet.

FF6. Kessler discloses an electromechanical hydraulic trailer braking system for towed vehicles such as trailers (Kessler, col. 1, ll. 4-8). In Kessler's system, the powered vehicle 10 is provided with an electrical control means 14 capable of receiving an input signal 16 indicative of the need to engage or disengage braking means in a towed vehicle 12 (Kessler, col. 4, ll. 3-9). Input signal 16 may be taken from the position or motion of the brake pedal or master cylinder piston rod of powered vehicle 10 or may be generated manually (Kessler, col. 4, ll. 10-15).

FF7. Kessler's electric control means 14 sends an electric braking signal, via connector 20, to a solenoid 22 on trailer 12. The armature of solenoid 22 is drivingly coupled to the piston rod of trailer braking master cylinder 24 to generate a hydraulic pressure signal that is transmitted via a hydraulic line to the wheel cylinder 26 of a conventional drum braking or disc braking wheel assembly (Kessler, col. 4, ll. 28-37).

FF8. Kessler's solenoid 22 includes helically-wound insulated wire windings 52 around a ferromagnetic armature 54 slidably disposed in a bore 56 in solenoid 22. Armature 54 is coupled to piston rod 34, either directly (Fig. 3) or via lever 60 and chain linkages (Fig. 2) (Kessler, col. 4, ll. 52-55 and col. 5, ll. 1-17).

FF9. For redundancy, Kessler's solenoid 22 may be provided with double windings 53 independently suppliable with electric signals (Fig. 7) as a safety feature by which solenoid 22 will continue to operate to provide braking, albeit at a reduced level, in the event that power is lost to either one of the windings 52 or 53 as a result of, for example, a partial separation of trailer connector 20 (Kessler, col. 4, ll. 61-67).

FF10. Kessler's electromechanical braking system does not include an emergency stop device "which responds to the omission of the electric current" and supplies a braking signal to the electric magnet for the actuation of a hydraulic braking cylinder in case of omission of the current.

ANALYSIS

As a preliminary matter, we note that the language in the paragraph bridging pages 5 and 6 of Appellants' Specification directed to alternative dependencies of the dependent claims does not impact in any way the

construction of the pending claims. The dependency of dependent claims is governed by 35 U.S.C. § 112, which provides, in relevant part, in paragraph 5, that "[a] claim in multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed." As none of Appellants' claims contains a reference to more than one claim previously set forth, they will not be construed as multiple dependent claims. With that in mind, we now turn to the issues raised in this appeal.

The Examiner has not erred in finding that Toomey's first and second brake master cylinders 6 and 15 are connected to a single brake conduit, namely, threaded connection 28, via Tee valve 22 (FF2 and FF4). Threaded connection 28 is clearly illustrated (Fig. 3) as being a discrete element threadedly received in a bore of leg 27 of Tee valve 22 (FF4). We determine the scope of the claims in patent applications "not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification as it would be interpreted by one of ordinary skill in the art.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005) (en banc) (*quoting In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004)). Consistent with Appellants' Specification, which gives no indication that the term "conduit" is used in any manner different from its ordinary and customary meaning, we interpret the language "hydraulic braking conduit" in claim 1 to be "a pipe or channel for conveying fluids" (*Webster's New World Dictionary* 291 (Victoria Neufeldt et al. eds., 3rd coll. ed., Simon & Schuster, Inc. 1988)) within a hydraulic braking system. Toomey's threaded connection 28 is a pipe or channel for conveying

hydraulic fluid within a hydraulic braking system and is thus a "hydraulic braking conduit" as recited in claim 1.

While Kessler evidences that electrically-actuated hydraulic brakes were known in the art at the time of Appellants' invention, neither Toomey nor Kessler teaches or suggests an emergency stop device which *responds to the omission of the electric current*, the emergency stop device supplying a braking signal to the electric magnet for the actuation of the second hydraulic braking cylinder in case of omission of the current, as called for in claim 1 (FF5 and FF10). The redundant double windings 52, 53 provided on Kessler's solenoid 22 merely provide two independent winding paths for passage of current to permit the solenoid to operate to provide braking power in the event that current is lost to either of the windings. The redundant winding does not change its operation or react *in response to* omission of current to the other winding but, rather, merely continues to provide a path for passage of current. The Examiner therefore erred in determining that the combination of Toomey and Kessler would have suggested "an emergency stop device being provided which responds to the omission of the electric current, the emergency stop device supplying a braking signal to the electric magnet for the actuation of the second hydraulic braking cylinder in case of omission of the current" as called for in claim 1. The rejection of claim 1, as well as claims 2-10 depending from claim 1, cannot be sustained.

SUMMARY

The decision of the Examiner to reject claims 1-10 is reversed.

REVERSED

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