

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

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* THORSTEN SCHULZE, FRANZ STEIMMEL,  
MICHAEL OPITZ, and FRANK WAHNER

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Appeal 2007-0689  
Application 10/329,825  
Technology Center 3600

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Decided: April 23, 2007

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Before ANITA PELLMAN GROSS, JENNIFER D. BAHR, and  
STUART S. LEVY, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Thorsten Schulze et al. (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 9 and 11-15, the only pending claims. We have jurisdiction over this appeal under 35 U.S.C. § 6.

Appellants invented an air suspension piston comprising a longitudinal-seam welded tube made of a self-hardened aluminum alloy. Claim 9, the only independent claim, reads as follows:

9. An air suspension piston comprising a longitudinal-seam welded tube welded without any weld metal and made from an aluminum alloy, wherein the aluminum alloy is a self-hardened alloy.

The Examiner relies upon the following as evidence of unpatentability:

Holman	US 2,796,508	Jun. 18, 1957
Hoffman	US 5,342,139	Aug. 30, 1994
Ebert	US 6,024,343	Feb. 15, 2000
Hillburger	US 6,113,081	Sep. 05, 2000

Appellants seek review of the Examiner's rejection of claims 9 and 11-15 under 35 U.S.C. § 103(a) as unpatentable over any of Hoffman, Ebert, and Hillburger in view of Holman.

The rejection is set forth in the Office Action mailed October 28, 2005 (hereinafter "Office Action"). The Examiner provides reasoning in support of the rejection in the Answer (mailed April 13, 2006). Appellants present opposing arguments in the Brief (filed February 27, 2006).<sup>1</sup>

## THE ISSUE

The issue in this appeal is whether Holman in combination with any of Hoffman, Ebert, and Hillburger would have suggested constructing the air

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<sup>1</sup> Appellants waived the opportunity to present oral argument at the hearing set for April 5, 2007.

spring piston of any of Hoffman, Ebert, and Hillburger as a longitudinal-seam welded tube as proposed by the Examiner (Office Action 2).

#### FINDINGS OF FACT

FF1. Hoffman discloses an air spring comprising a solid piston 22 (Fig. 1), which is preferably formed of a high strength plastic but which may be formed of aluminum or other lightweight material (Hoffman, col. 6, ll. 22-25).

FF2. Ebert discloses four embodiments of an air spring piston 8. The first embodiment (Figs. 2a-2c) of piston 8 is a case profiled member, such as an injection molded member, having a thin outer wall with a circular mantle surface 8a and a plurality of stays 8b extending radially toward the center of the piston (Ebert, col. 3, ll. 61-65). The second embodiment (Figs. 3a-3b) likewise is a cast member, especially an injection-molded member, comprising a thin outer wall with a circular mantle surface 8a connected by radially extending stays 8b to a solid central body having threaded bushings 14 inserted therein (Ebert, col. 4, ll. 22-36). The third and fourth embodiments (the right side and left side, respectively, of Fig. 4) are both extruded profiled members that can be produced as a continuous material which is subsequently cut to length as needed (Ebert, col. 4, ll. 37-42). The profiled members comprise a central support body 8c connected by radially extending stays 8b to an outer wall with a cylindrical mantle surface 8a. Ebert's piston 8 may be made of plastic material, preferably fiberglass-reinforced plastic material, or a cast light metal alloy, preferably aluminum cast alloy (Ebert, col. 2, ll. 41-49).

FF3. Hillburger discloses an air spring including a piston 3 (Fig. 2) "having an inverted generally bowl-shaped configuration formed of a suitable

material such as aluminum” and including a base 4, an annular wall 5 extending downwardly from the base and terminating in a peripheral edge 6, and a central supporting structure 7 joined with and extending downwardly from the base (Hillburger, col. 3, ll. 23-30).

FF4. Holman discloses a method of forming tubing by welding together two surfaces of non-ferrous metal such as aluminum or aluminum alloy, for example, comprising the steps of feeding a flat strip 10 of non-ferrous metal into a machine, using wire wheels 18 to eliminate all oxides and foreign elements from adjoining surfaces to be welded, welding the surfaces, and applying transverse pressure to the weld during its transformation from a solid to a molten to a solid state. No flux is used during the welding step. The edges of the tubular strip are welded in butting relation, thus forming smooth internal faces and eliminating waste of material (Holman, col. 1, ll. 37-51, 70-71, col. 2, ll. 19-26). Holman’s method produces a simple, hollow, cylindrical longitudinal-seam welded aluminum alloy tube. Holman does not disclose any particular application for the aluminum alloy tubes produced by the method and, in particular, does not disclose use of these tubes for air spring pistons.

#### PRINCIPLES OF LAW

Where obviousness is based on a combination of prior art references, the fact finder must determine what the prior art teaches, whether it teaches away from the claimed invention, and whether it motivates a combination of the teachings of the references to arrive at the claimed invention. *DyStar Textilsfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1363, 80 USPQ2d 1641, 1647 (Fed. Cir. 2006).

Obviousness cannot be established by combining the teachings of prior art references to produce the claimed invention, absent some suggestion or incentive to do so. It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art to establish obviousness of the claimed invention. *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992).

## ANALYSIS

None of the air spring pistons disclosed by Hoffman, Ebert, and Hillburger is a longitudinal-seam welded tube (FF1, FF2, and FF3). Further, none of the air spring pistons disclosed by Hoffman, Ebert, and Hillburger is a simple, hollow, cylindrical tube (FF1, FF2, and FF3). Hoffman’s piston is a solid member (FF1); Ebert’s piston comprises radially extending stays and, in at least some embodiments, a solid central body (FF2); and Hillburger’s piston comprises an inverted generally bowl-shaped configuration including a base extending radially inwardly from the annular wall and central supporting structure extending downwardly from the base (FF3).

Accordingly, none of the pistons disclosed by Hoffman, Ebert, and Hillburger would appear to lend itself to formation as a longitudinal-seam welded tube by butting and welding the edges of a flat strip, in the manner taught by Holman. Holman discloses a method for producing simple, hollow cylindrical tubes and offers no hint or suggestion to use the disclosed method to produce air spring pistons. We therefore conclude that, absent hindsight gleaned from Appellants’ Specification and claims, one of ordinary skill in the art would not have found suggestion from the references

applied by the Examiner to form the air spring piston of any of Hoffman, Ebert, and Hillburger as a longitudinal-seam welded tube in the manner taught by Holman. The Examiner's rejection of claim 9, and claims 11-15 depending from claim 9, cannot be sustained.

Appellants admit that tubes made of either steel or aluminum were known, at the time of Appellants' invention, for use as air suspension pistons (Specification [0006]) and that steel tube pistons are longitudinal-seam welded and drawn (Specification [0007]). Appellants also admit that aluminum tube pistons are extruded and drawn (Specification [0009]). Appellants additionally admit that German published application DE 41 42 325 A1 discloses longitudinal-seam welded tubes made from self-hardened or hardenable aluminum alloy blanks for the production of chassis members (Specification [0015]). Upon return of jurisdiction of the present application to the Examiner, the Examiner may wish to consider whether German published application DE 41 42 325 A1, either alone or in combination with Appellants' admissions, contains any teaching or suggestion to produce an air suspension piston comprising a longitudinal-seam welded tube made from a self-hardened aluminum alloy.

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Application 10/329,825

SUMMARY

The decision of the Examiner to reject claims 9 and 11-15 is reversed.

REVERSED

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Charles Guttman, Esq.  
Proskauer Rose, LLP  
1585 Broadway  
New York, NY 10036-8299