

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

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL POLLOCK, DAVE MOSES, DICK RYAN,
DENNIS MAHONEY and PETER BERG

Appeal No. 2001-0290
Application No. 09/084,871

ON BRIEF

Before McCANDLISH, Senior Administrative Patent Judge, FRANKFORT
and BAHR, Administrative Patent Judges.
BAHR, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-5, which are all of the claims pending in this application.

BACKGROUND

The appellants' invention relates to a one-piece steering knuckle assembly for vehicles wherein the tie rod arm as well as the hydraulic brake caliper bracket and axle spindle are forged together as a single piece (specification, page 1). According to appellants, "[s]uch a design eliminates the brake caliper/knuckle joint and the tie rod arm/knuckle joint, and thus, it results in savings in assembly time and weight" (specification, page 2). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.¹

The examiner relied upon the following prior art references in rejecting the appealed claims:

Afanador et al. (Afanador)	3,801,124	Apr. 2, 1974
Mitchell	5,219,176	Jun. 15, 1993

Claims 1-5² stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mitchell in view of Afanador.

¹ The copies of claims 3 and 4 in the appendix to appellants' brief include minor errors in reproduction, in that, in line 2 thereof, "flange" should be "flanged."

² Although the rejected claims were not identified in the statement of the rejection on page 3 of the answer, it is apparent from the final rejection and from the examiner's agreement (answer, page 2) with appellants' statement of the issues that claims 1-5 stand rejected under 35 U.S.C. § 103(a).

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference to the answer (Paper No. 15) for the examiner's complete reasoning in support of the rejection and to the brief (Paper No. 14) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Appellants' independent claim 1 recites a one-piece forged steering knuckle assembly comprising a flanged body, hydraulic brake caliper brackets, a wheel spindle, upper and lower enlarged bosses and a tie rod arm all being formed from a single steel billet as a one-piece heavy duty forging. Mitchell discloses a one-piece forged knuckle assembly comprising a flanged body, wheel spindle, tie rod arm and enlarged bosses all formed from a single steel billet as a

one-piece heavy duty forging (column 1, lines 49-52).

According to Mitchell, the unitary forged construction of Mitchell's steering knuckle assembly "not only provides for a rugged and reliable connection, but also reduces the costs of additional components as well as machining and the enlarged connecting bosses which require additional steel for their fabrication" (column 3, line 66, to column 4, line 3).

Mitchell's one-piece forged knuckle assembly is provided with openings 39, 40 for attachment to the brake disk but lacks hydraulic brake caliper brackets formed as a pair of rails projecting from said flanged body defining a c-shaped member for directly engaging a brake caliper, as recited in claim 1.

Afanador discloses a knuckle assembly comprising a one-piece base casting including the upper knuckle, brake rails, steering arm and bosses and an integral spindle and lower knuckle 14 formed as a hot forging for assembly with the base casting. A spindle opening is machined in the base casting to receive the spindle of the integral forged spindle and lower knuckle. As illustrated in Figures 1 and 4, Afanador's brake rails are formed as a pair of caliper rails projecting from a flanged body of the base casting defining a c-shaped member.

According to Afanador, this two-piece knuckle assembly is greatly simplified with respect to multi-component knuckle assemblies (column 2, lines 61-64).

The examiner contends that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the forged one-piece knuckle assembly of Mitchell to include the hydraulic brake caliper brackets formed as a pair of caliper rails projecting from the flanged body defining a c-shaped member in view of the teachings of Afanador to provide a simplified assembly (answer, pages 4-5). Appellants, on the other hand, point out that Afanador teaches caliper rails that are cast, not forged (brief, pages 4-5), and urge that this "evidences the fact that those of skill in the art prefer to form the brake calipers [*sic*: caliper brackets] via casting rather than forging due to the inherent benefits and difficulties traditionally associated with the methods of steel working" (brief, pages 6-7).³ According to appellants, "it goes against conventional thinking in this art

³ Appellants also note that the examiner "has not provided a single teaching of a pair of brake calipers [*sic*: caliper brackets] integrally formed with the flanged body as a unitary **forged** body" (brief, page 6).

to forge brake calipers [*sic*: caliper brackets]" (brief, page 6).

We fully appreciate the teachings of Mitchell and Afanador and are cognizant of the objective set forth in both references of simplifying the steering knuckle assembly by reducing the number of separate components requiring assembly. We also recognize that Afanador discloses a structure including brake caliper rails formed unitarily with the upper knuckle and flanged body of the steering knuckle assembly. However, as pointed out by appellants, Afanador teaches formation of the brake caliper rails as part of a casting, rather than as a forging, in contrast to the integral spindle and lower knuckle component which is constructed as a one-piece forging. Considering the overall teachings of the applied references, we find no suggestion therein to form the brake caliper rails as a unitary part of the one-piece forging of Mitchell. Specifically, it is not apparent to us why one skilled in the art would have ignored the teaching of Afanador of forming the brake caliper rails as a casting for assembly with other portions of the knuckle assembly formed as a forging in favor of forming the rails as part of a forging,

especially in light of the apparent complexity of the brake caliper rails and slots as compared with the forged components of Mitchell and Afanador and in the absence of any evidence that it was known in the art to forge the type of brake caliper rails disclosed by Afanador. Even assuming that the examiner is correct that the additional step of forging brake caliper rails would have been well within the level of skill of one in the art at the time of appellants' invention, the mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. See In re Mills, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

For the foregoing reasons, we have determined that the applied references are not sufficient to have suggested the subject matter of claim 1. From our perspective, the only suggestion for putting the selected pieces from the references together in the manner proposed by the examiner is found in the luxury of hindsight accorded one who first viewed the appellants' disclosure. This, of course, is not a proper

basis for a rejection. See In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992). Thus, we shall not sustain the examiner's rejection of claim 1 or of claims 2-5 which depend from claim 1.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-5 under 35 U.S.C. § 103(a) is reversed.

REVERSED

HARRISON E. McCANDLISH)	
Senior Administrative Patent Judge)	
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)	BOARD OF PATENT
CHARLES E. FRANKFORT)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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