

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte YVON DUMETZ

Appeal No. 2004-0540
Application No. 09/601,237

HEARD: APRIL 4, 2004

Before ABRAMS, NASE 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 1-4, 6 and 7, which are all of the claims pending in this application.

BACKGROUND

The appellant's invention relates to a flat tube for the circulation of fluid in a heat exchanger, especially a radiator for cooling the engine of a motor vehicle, formed by a strip of sheet metal folded so as to define a peripheral wall and an intermediate wall or

spacer mechanically reinforcing the tube and dividing the interior thereof into two longitudinal flow channels, the mechanical connection between the peripheral wall and the spacer being provided partly by the continuation of the material of the strip and partly by brazing (specification, page 1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

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

Potier	5,219,024	Jun. 15, 1993
Le Gauyer (Le Gauyer '832)	5,579,832	Dec. 3, 1996
Martins	5,765,634	Jun. 16, 1998
Nonogaki et al. (Nonogaki) (Japanese Kokai patent application)	Hei 6[1994]-123571	May 6, 1994
Le Gauyer (Le Gauyer '221) (French patent document)	2,735,221	Dec. 13, 1996 ¹

The following rejection is before us for review.

Claims 1-4, 6 and 7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Potier or Le Gauyer '832 in view of Nonogaki, Le Gauyer '221 or Martins.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejection, we make reference to the answer (Paper No. 24) for the examiner's complete reasoning in support of the rejection and to the brief and reply brief (Paper Nos. 23 and 25) for the appellant's arguments thereagainst.

¹ We derive our understanding of the Nonogaki and Le Gauyer '221 references from the English language translations obtained by the U.S. Patent Office (USPTO), copies of which are appended hereto.

OPINION

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

Claim 1, the sole independent claim pending in this application, recites a flat tube formed by a strip of sheet metal folded so as to define a peripheral wall and an interior spacer mechanically reinforcing the tube and dividing the interior thereof into two longitudinal flow channels which are open at at least one first end of the tube, the tube including a body with a substantially constant elongate cross section and at least one head region extending between the body and the at least one first end, wherein the peripheral wall, but not the spacer, is deformed in such a way as to dilate the channels in the width direction of the cross section and to shrink them toward the spacer in the length direction of the cross section, wherein the spacer is formed by two marginal zones of the strip which are brazed mutually face-to-face continuously along their entire length.

Each of the primary references, Potier (note Figures 5 and 6) and Le Gauyer '832 (note Figure 2), relied upon by the examiner discloses a heat exchanger comprising two rows of heat exchanger tubes. Like the tube recited in appellant's claim 1, each of the tubes of Potier and Le Gauyer '832 has a body section of substantially constant cross section and a head region which is dilated in the width dimension and

shortened in the length dimension of the cross section relative to the cross section of the body portion. Unlike appellant's tube, however, each tube of Potier and Le Gauyer '832 defines only a single longitudinal flow channel, rather than being formed by a strip of metal folded so as to define two longitudinal flow channels. In essence, two of the tubes of Potier and Le Gauyer are needed to provide the two flow channels defined by the tube recited in appellant's claim 1.

Nonogaki (note Figure 4), Le Gauyer '221 (note Figure 3) and Martins disclose heat exchanger tubes, with each tube being formed by a single strip of sheet metal folded so as to define two longitudinal flow channels and a reinforcing spacer as called for in claim 1. Le Gauyer '221 points out that a main drawback of heat exchangers that bundle pairs of tubes is the requirement for insertion of tubes of the same pair in one hole of the collecting plate, thereby complicating the assembly (translation, page 2). The tubes of these references, however, appear to be of substantially constant cross section and thus lack the header region having a cross section dilated in the width dimension and shortened in the length dimension relative to a body portion.

In rejecting the claims, the examiner's position is that it would have been obvious to one of ordinary skill in the art to employ in Potier or Le Gauyer '832 a tube formed by a strip of folded sheet metal having two longitudinal flow channels for the purpose of ease of manufacture and assembly, as recognized by Nonogaki, Le Gauyer or Martins (answer, page 6). Appellant points out that each of the secondary references, Nonogaki, Le Gauyer '221 and Martins, is exclusively limited to flat tubes which maintain

a constant symmetric cross section along their entire length and argues that the examiner has failed to identify the proper motivation, much less any reasonable expectation of success, for the proposed combination and that, even if one were to attempt to deform the flat tubes of Nonogaki, Le Gauyer '221 or Martins, the integrity of the marginal zones would be breached and the resultant structure would not be brazed mutually face to face along the entire length of the marginal zones. See pages 5 and 6 of the brief.

We find ourselves in agreement with appellant. While Nonogaki, Le Gauyer '221 and Martins disclose tubes formed by a strip of sheet metal folded so as to form spacers and two longitudinal flow channels, they teach nothing about varying the cross section of the tube along its length. It is only with the benefit of hindsight derived by reading appellant's disclosure that one of ordinary skill in the art would have been motivated to deform the tubes in the manner called for in appellant's claim 1, without deforming the spacer formed by the marginal zones, such that the marginal zones are brazed mutually face-to-face continuously along their entire length. 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). We therefore shall not sustain the examiner's rejection of claim 1, or claims 2-4, 6 and 7 which depend from claim 1.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-4, 6 and 7 under 35 U.S.C. § 103 is reversed.

REVERSED

NEAL E. ABRAMS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
JEFFREY V. NASE)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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JENNIFER D. BAHR)	
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Appeal No. 2004-0540
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Page 7

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