

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. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PIERRE SABATHIE

Appeal No. 2000-1332
Application No. 08/793,242

ON BRIEF

Before CALVERT, MCQUADE, and GONZALES, Administrative Patent Judges.

MCQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Pierre Sabathie appeals from the final rejection of claims 2 through 5, 7, 8, 10, 11 and 13, all of the claims pending in the application. We affirm-in-part.

THE INVENTION

The invention relates to a heat exchanger and to a method for producing same. The heat exchanger includes at least one fluid box or header, a plurality of heat exchange tubes in communication with the fluid box, and at least one internal partition dividing the fluid box into separate compartments. Claims 10 and 11 are illustrative and read as follows:

10. A method for producing a heat exchanger having at least one fluid box delimited by a tubular wall of generally cylindrical shape having a substantially uniform circular internal transverse section and having a perimeter and a pair of end portions, said fluid box being separated into compartments by at least one intermediate transverse partition, having a generally circular edge portion, said edge portion matching said tubular wall circular internal transverse section for sliding movement of said partition therewithin, each of said fluid box compartments having a respective opening formed therein, the heat exchanger further having a plurality of parallel tubes, each tube communicating with a compartment of the fluid box through said respective opening formed in said fluid box in a region of the perimeter of said tubular wall, comprising the steps of:

inserting each partition into the tubular wall through an open end of said wall to locate the partition in a desired position;

immobilizing each partition by deforming the tubular wall to establish two regions of the perimeter of the

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tubular wall distinct from the regions in which said openings are formed, said established two regions being disposed approximately symmetrically with each other with respect to an axial plane passing through said openings;

and

forming said fluid box compartment respective openings before the transverse partitions are positioned and immobilized by deformation.

11. A heat exchanger comprising:

a fluid box delimited by a tubular wall of generally cylindrical shape having a substantially uniform circular internal transverse section and a perimeter, said fluid box being separated into compartments by at least one intermediate transverse partition, each partition having a generally circular edge portion, said edge portion matching said tubular wall circular internal transverse section for sliding movement of said partition therewithin, the heat exchanger further including a plurality of tubes, each tube being received through an opening in a region of the perimeter of said tubular wall, the edge portion of each partition being surrounded by said tubular wall, said tubular wall being deformed in two regions of its perimeter distinct from the region in which said openings are formed to immobilize each of said partitions, said two regions being disposed approximately symmetrically with each other with respect to an axial plane of the tubular wall passing through said openings.

THE PRIOR ART

The references relied upon by the examiner as evidence of obviousness are:

Yamaguchi

5,097,900

Mar.

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24, 1992		
Sutou et al. (Sutou)	5,119,552	Jun. 9,
1992		
Cribari	5,586,600	Dec. 24,
1996		

THE REJECTIONS

Claims 2 through 5, 7, 10, 11 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of Cribari.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of Cribari and Sutou.

Attention is directed to the appellant's brief (Paper No. 13) and to the examiner's answer (Paper No. 14) for the respective positions of the appellant and the examiner with regard to the merits of these rejections.

DISCUSSION

Yamaguchi, the examiner's primary reference, discloses a heat exchanger in the form of a condenser 200 (see Figure 7). The condenser includes a pair of open-ended, cylindrical header pipes 130 and 140, a plurality of end plugs 15-18 and partitions 71, 72, 75 dividing the header pipes into separate fluid chambers, and a plurality of heat exchange tubes 21 extending between the header pipes and communicating with respective chambers. Of the manner in which the heat exchanger is produced, Yamaguchi states that

Plug 16 is first inserted into the interior of header pipe 130 through the upper opening thereof, and is then moved by a rod to the lower end of the header pipe 130. Partitions 71 and 72 are also inserted in header pipe 130 and moved to their predetermined positions, respectively. Finally, plug 15 is inserted at the upper end of header pipe 130. Since the outer diameter of the plugs and the partitions is predetermined to be approximately the same as or slightly less than the inner diameter of the header pipe, the [plugs and] partitions may be moved smoothly to their respective positions in the header pipe. . . . Pressure is applied through header pipe 130 to each plug and partition by a press to fix their position in header pipe 130 after each has been inserted therein. Partition 75 and plugs 17 and 18 are inserted and fixed within header pipe 140 in a

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similar manner. After header pipes 130 and 140 are assembled, the remaining parts of the condenser including tubes 21 . . . are fixed to the header pipes by brazing [column 6, line 51, through column 7, line 12].

Cribari is similar to Yamaguchi in that it discloses a heat exchanger 2 in the form of a condenser having a pair of opposed tubular manifolds or headers 4, a plurality of end partitions 6 and intermediate partitions 8 dividing the manifolds into separate fluid chambers, and a plurality of heat exchange tubes 10 extending between the manifolds and communicating with respective chambers. Each of the manifolds comprises a header part 16 and a tank part 18 which together define a tube, with the header part including apertures for receiving the heat exchange tubes 10. The partitions 6, 8 are disc-shaped elements positioned in the tank part 18 before its assembly with the header part 16 and held in place by localized deformed regions or "dimples" 24 formed symmetrically in the tank part 18 by a punch tool 32 (see Figures 3 through 5 and column 4, lines 8 through 27). Cribari teaches that the dimples 24 "provide a particularly simple yet effective means of maintaining

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the partition members accurately in position" (column 2, lines 21 through 23).

In proposing to combine Yamaguchi and Cribari in support of the appealed rejections, the examiner concludes that it would have been obvious at the time the invention was made to a person having ordinary skill in the art "to employ in Yamaguchi deformations in the tubular wall in two symmetrically disposed, localized regions for the purpose of ease of assembly as recognized by Cribari" (answer, page 4).

As indicated above, independent claim 10 recites a method for producing a heat exchanger comprising, inter alia, the step of forming the openings in the fluid box compartment for the heat exchanger tubes "before" the transverse partitions are positioned and immobilized by deformation. The examiner has found that Yamaguchi discloses a method of manufacturing a heat exchanger comprising the step of "inserting partitions 71, 72 into tubular wall 130 having tube receiving openings therein"

(answer, page 3). The examiner goes on to explain that

[i]t is believed the openings for the tubes of Yamaguchi are formed prior to the partition insertion, since the tubes and conduits are immediately inserted and fixed to the fluid box. . . . Clearly, if Yamaguchi deemed a criticality on forming the tube openings after the partition insertion, further disclosure would have been made [answer, page 6].¹

The examiner's position here is unsound. To begin with, and as pointed out by the appellant, Yamaguchi is silent as to whether openings for heat exchange tubes 21 are formed in header pipes 130, 140 before or after the end plugs 15-18 and partitions 71, 72, 75 are positioned and immobilized. Furthermore, Yamaguchi neither states nor implies that the heat exchange tubes are inserted and

¹On page 6 in the answer, the examiner relies on Sutou to bolster the proposition that Yamaguchi's tube openings are formed prior to partition insertion. Sutou, however, has not been included in the statement of the rejection of claims 2 through 5, 7, 10, 11 and 13. Where a reference is relied on to support a rejection, whether or not in a minor capacity, there is no excuse for not positively including the reference in the statement of the rejection. See In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970). Accordingly, we have not considered the teachings of Sutou in reviewing the rejections of claims 2 through 5, 7, 10, 11 and 13 .

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fixed to the header pipes "immediately" after the end plugs and partitions are positioned and immobilized as urged by the examiner. Thus, Yamaguchi does not provide any factual support for the examiner's determination that it meets the claim 10 limitation in question. Moreover, given the fundamental disparities between the header constructions disclosed by Yamaguchi and Cribari, there is nothing in the combined teachings of these two references which would have suggested a method meeting the limitation in question.

Accordingly, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of claim 10, or of claims 2 through 5, 7 and 13 which depend therefrom, as being unpatentable over Yamaguchi in view of Cribari.

We also shall not sustain the standing 35 U.S.C. § 103(a) rejection of claim 8, which depends from claim 10, as being unpatentable over Yamaguchi in view of Cribari and Sutou. Notwithstanding the examiner's recently advanced argument to the contrary (see n.1, supra), the header formation process disclosed by Sutou

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does not cure the foregoing deficiencies of the basic Yamaguchi-Cribari combination with respect to parent claim 10.

We shall sustain, however, the standing 35 U.S.C. § 103(a) rejection of independent claim 11 as being unpatentable over Yamaguchi in view of Cribari.

The heat exchanger disclosed by Yamaguchi meets all of the limitations in claim 11 except for those requiring the tubular wall to be "deformed in two regions of its perimeter distinct from the region in which said [tube] openings are formed to immobilize each of said partitions, said two regions being disposed approximately symmetrically with each other with respect to an axial plane of the tubular wall passing through said openings." As indicated above, Yamaguchi does not specify the nature of the press-generated deformations which fix the positions of the plugs and partitions in the header pipes. Nonetheless, Cribari's disclosure that localized, symmetrically-disposed, deformed regions or "dimples" 24

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provide a particularly simple yet effective means of maintaining partition members accurately in position would have furnished the artisan with ample suggestion to employ such dimples to immobilize Yamaguchi's plugs and partitions. The spatial relationship between Cribari's dimples and the tube openings associated therewith, as well as simple common sense, would have suggested locating such dimples with respect to Yamaguchi's tube openings as set forth in claim 11. Hence, the lack of motivation arguments advanced by the appellant with respect to the proposed combination of Yamaguchi and Cribari as applied against claim 11 are not persuasive.

SUMMARY

The decision of the examiner to reject claims 2 through 5, 7, 8, 10, 11 and 13 is affirmed with respect to claim 11 and reversed with respect to claims 2 through 5, 7, 8, 10 and 13.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR

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§ 1.136(a).

AFFIRMED-IN-PART

	IAN A. CALVERT)	
	Administrative Patent Judge)	
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)	BOARD OF
PATENT)	
	JOHN P. MCQUADE)	APPEALS AND
	Administrative Patent Judge)	INTERFERENCES
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