

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GISULFO BACCINI

Appeal No. 95-5066
Application No. 07/931,330¹

HEARD: March 09, 1999

Before SOFOCLEOUS, WALTZ, and SPIEGEL, Administrative Patent Judges.
SPIEGEL, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-3 and 5-7.² Claims 8-11, the only other claims pending in the application, have been withdrawn from further consideration under 37 CFR § 1.142(b) as not readable on the elected invention.

We REVERSE.

¹ Application for patent filed August 18, 1992.

² Claims 1 and 3 have been amended subsequent to the appealed rejection.

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BACKGROUND

"Green-tape foils" are thin sheets, e.g., of uncured alumina, which have a circuit printed on one or both surfaces. Holes are bored in a sheet and filled with a conductive paste. After the various electrical circuits and connections have been printed on the sheets, they are stacked in precise alignment, compressed and heated to form a single ceramic structure with a plurality of circuits embedded therein. Coincident tack welding has been used to maintain alignment during stacking, compressing and heating. However, tack welding compresses the sheet slightly so the thickness of the weld spot is less than the thickness of the two adjacent sheets, i.e. the weld spot creates a small depression. Consequently, as more sheets are stacked and welded at the same location, the depression deepens. Misalignment and/or breakage of outer "green" sheets in the area of the deepening weld spot results as they are pressed into the depression as welding continues. Alternatively, adhesives may be manually applied to the sheets to bond adjacent sheets. The appellant's invention relates to a method of bonding a plurality of individual "green-tape foils" to each other using staggered welds between individual foils. Staggering the welds spreads the depression over different positions among successive sheets, rather than concentrating the depression in the same weld area, thus addressing the misalignment/breakage problem of coincident tack welds without the time, cost and inaccuracy of manual adhesive application. (Brief pages 2-4)

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Claim 1 is illustrative of the subject matter on appeal and reads as follows:

1. Method of anchoring foils for green-tape circuits, whereby the foils have a surface and are printed and dried, and are superimposed on each other in a coordinated manner, the method comprising the steps of:

bonding at least a first green-tape foil to at least one other previously positioned green-tape foil by means of at least one weld made by a source of heat on the surface of one of said foils; and

bonding at least a second green-tape foil to said bonded foils on the surface of said second foil displaced from said weld between said first foil and said previously positioned foil.

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

Newton	3,682,740	Aug. 08, 1972
Dubuisson et al. (Dubuisson)	4,814,030	Mar. 21, 1989
Kotchick	4,816,036	Mar. 28, 1989
Huebner	4,957,577	Sep. 18, 1990
Ketcham et al. (Ketcham)	5,089,455	Feb. 18, 1992
Hamuro et al. (Hamuro)	5,174,842	Dec. 29, 1992 (filed Oct. 30, 1990)
Buckley et al. (Buckley)	5,217,656	Jun. 08, 1993 (filed Jul. 12, 1990)
Kaun	5,219,673	Jun. 15, 1993 (filed Aug. 23, 1991)
Italplastic S.P.A. (Italplastic) ³ (French Patent)	2,100,259	Mar. 17, 1972

The prior art reference relied upon by this Merits Panel:

McGraw-Hill DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, second edition, Daniel N. Lapedes, Editor in Chief, published by McGraw-Hill Book Company, New York, 1978, page 1046.

³ Our consideration of this reference is based on an English translation thereof, a copy of which is provided to appellant with this decision.

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THE ISSUES⁴

The issues present for review are:

(1) whether the examiner erred in rejecting claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Hamuro, Ketcham and Dubuisson;

(2) whether the examiner erred in rejecting claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Kaun⁵;

(3) whether the examiner erred in rejecting claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Kaun in view of Kotchick and/or Huebner;

(4) whether the examiner erred in rejecting claim 3 under 35 U.S.C. § 103 as unpatentable over Kaun, Kotchick and Huebner in view of Buckley⁶;

⁴ The last Office action (paper no. 16, mailed September 8, 1994) also included
(i) a rejection of claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Berger (U.S. Patent 4,499,149) and Reibach (U.S. Patent 3,616,200);
(ii) a rejection of claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Berger and Reibach in view of Kotchick and/or Huebner;
(iii) a rejection of claim 3 under 35 U.S.C. § 103 as unpatentable over Berger and Reibach in view of Kotchick and/or Huebner taken further in view of Buckley;
(iv) a rejection of claims 5-7 under 35 U.S.C. § 103 as unpatentable over Berger and Reibach in view of Kotchick and/or Huebner taken further in view of Italplastic; and,
(v) a rejection of claim 2 under 35 U.S.C. § 112, fourth paragraph, as failing to further limit the subject matter of the previous claim, i.e., claim 1.
In that these rejections were not repeated in the Substitute Answer, they are presumed to have been withdrawn. *Ex parte Emm*, 118 USPQ 180, 181 (Bd. App. 1957).

⁵ There is an apparent typographical error on page 1 of the Substitute Answer where claims **1-3** are rejected as unpatentable over Kaun since both the last Office action (paper no. 16, mailed September 8, 1994 page 6) and page 6 of the Substitute Answer both reject claims **1 and 2** as unpatentable over Kaun. In any event, it does not affect the outcome of our decision.

⁶ The last Office action (paper no. 16, mailed September 8, 1994) also included a rejection of claim 3 under 35 U.S.C. § 103 as unpatentable over Kaun in view of either Kotchick or Huebner, each taken further in view of Buckley. In that these rejections were not repeated in the Substitute Answer, they are presumed to have been

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(5) whether the examiner erred in rejecting claims 5-7 under 35 U.S.C. § 103 as unpatentable over Kaun, Kotchick and Huebner in view of Italplastic⁷; and,

(6) whether the examiner erred in rejecting claims 1-3 and 5-7 under 35 U.S.C. § 103 over Hamuro in view of Newton.

According to the Supplemental Answer (pages 1-2), (i) the new grounds of rejection of claim 1 in the Substitute Answer under 35 U.S.C. § 112, second paragraph, as indefinite has been withdrawn upon entry of the August 1, 1995 amendment to claim 1 and (ii) the rejection of claim 3 under 35 U.S.C. § 112, fourth paragraph, has been withdrawn upon reconsideration and entry of the February 6, 1995 amendment to claim 3.

DELIBERATIONS

Our deliberations in this matter have included evaluation and review of the following materials:

(1) the instant specification, including all of the claims on appeal, (2) appellant's Appeal Brief with amendment (paper nos. 18 and 19), (3) the Substitute Examiner's Answer (paper no. 22), (4) appellant's Reply Brief with amendment (paper nos. 23 and 24), (5) the Supplemental Examiner's Answer (paper no. 25), and (6) the above-cited prior art references.

withdrawn. *Ex parte Emm*, 118 USPQ 180, 181 (Bd. App. 1957).

⁷ The last Office action (paper no. 16, mailed September 3, 1994) also included a rejection of claims 5-7 under 35 U.S.C. § 103 as unpatentable over Kaun in view of either Kotchick or Huebner, each taken further in view of Italplastic. In that these rejections were not repeated in the Substitute Answer, they are presumed to have been withdrawn. *Ex parte Emm*, 118 USPQ 180, 181 (Bd. App. 1957).

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OPINION

The examiner has the initial burden of establishing a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993); *In re Fine*, 837 F.2d 1071, 1074-76, 5 USPQ2d 1596, 1598-1600 (Fed. Cir. 1988); *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). In rejecting a claim under 35 U.S.C. § 103, the examiner must provide a factual basis to support the obviousness conclusion. *In re Freed*, 425 F.2d 785, 788, 165 USPQ 570, 572 (CCPA 1970); *In re Warner*, 379 F.2d 1011, 1014-17, 154 USPQ 173, 176-78 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). Based on the objective evidence of record, the examiner is required to make the factual inquiries mandated by *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 469 (1966). The examiner is also required to explain why one having ordinary skill in the art would have been led to modify and/or combine the applied prior art to arrive at the claimed invention. To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), *cert. denied*, 488 U.S. 825 (1988); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986);

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ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933

(Fed. Cir. 1984). These showings by the examiner are an essential part of

complying with the burden of presenting a *prima facie* case of obviousness. *In re Oeticker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

With this as background, we turn to the rejections of the appealed claims.

1. Rejection of claims 1-2 as unpatentable over Hamuro, Ketcham and Dubuisson

Harumo laminates ceramic green sheets which are to become electrical elements by heat welding the sheets (i.e., foils) together as they are individually stacked using coincident successive welding at the same location on each sheet using hot iron 11 (see Figure 3; column 2, lines 16-29, 50-53 and 55-59; column 3, lines 13-18, 41-46 and 53-65).

Ketcham makes sintered structures with multidimensional flexibility by mixing green materials, such as aluminas, with sufficient solvent to obtain fluid viscosity, forming the mixture into thin sheets or other preforms using conventional thin sheet or foil forming means, such as doctor blading, rolling, printing, molding, extrusion, casting, etc., and sintering the thin sheets or preforms (column 3, lines 34-46; column 4, lines 20-31 and 54-63; column 8, lines 36-44; column 9, lines 46-48).

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Dubuisson describes a monolithic substrate for an electronic power component which is formed by a sintered stack of layers of dielectric material having an internal system of ducts for the circulation of a cooling system (abstract; column 2, lines 10-46; column 2, line 67 - column 3, line 13). Such substrates can be used both for carrying semi-conductor devices at a high

density or as substrates for producing hybrid circuits (column 1, lines 17-20). As noted by Dubuisson, use of power components or a high density of components, often necessitates

...dissipat[ing] a substantial amount of heat which is given off by the components. By way of example, it is often necessary to dissipate an amount of power of the order of 35 watts by means of a substrate of standardized dimensions of 152.4 x 86.36 mm. (column 1, lines 35-39)

The examiner acknowledges that Hamuro does not teach staggering welds between successively welded sheets (Substitute Answer page 10, paragraph one). However, according to the examiner, (a) Ketcham and Dubuisson suggest forming of green laminates with X-Y planar dimensions of one or more meters, (b) formation of such meter-sized green laminates necessarily requires tack bonding in at least one or several interior locations of the stacked sheets, and (c) a Dubuisson laminate could not be tack welded without staggering or omitting at least one tack within the interior of the multilayered green stack because the probability of a desirable interior Z-directional portion of the stack being free of both electrical metallization and cooling channels diminishes with the complexity of the laminate. Thus, the examiner concludes it would have

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been obvious to one of ordinary skill in the art (i) to tack bond the meter-sized Ketcham layers forming the Dubuisson laminate to reduce misregistration of the layers as suggested by Hamuro; and, (ii) to stagger the tack bonds because certain components in Dubuisson could not be properly tack welded without staggering or omitting at least one tack within the interior of a large Dubuisson multilayered green stack (Substitute Answer page 4, last paragraph to page 5, last paragraph).

However, the examiner fails to identify where such a suggestion of using Ketcham layers with X-Y planar dimensions of one or more meters to form a Dubuisson substrate can be found in the applied prior art. Ketcham does provide green structures in "long continuous lengths or relatively short sheets" (column 9, lines 47-48), e.g., "[n]arrow ribbons or sheets many meters wide" (column 8, lines 44-45). However, the examiner has not explained why one of ordinary skill in the art would have been motivated to completely reengineer and increase the mechanical complexity of the laminating apparatus of Hamuro to permit staggered welding, e.g., by adding X-Y translation movement capability of the existing hot irons or by increasing the number of hot irons and selectively controlling individual application of the hot irons to the stacked sheets, as argued by appellant (Brief pages 18-19), so that Ketcham "sheets many meters wide" could be used to form a substrate which Dubussion suggests has "standardized dimensions of 152.4 x 86.36 mm" (column 1, lines 38-39). It would appear to be easier to simply cut a Ketcham sheet into smaller

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sizes as Ketcham has done in several examples (see e.g., column 11, lines 27-28; column 15, line 63; and, column 6, lines 49-51). While the references *could* be combined as the examiner argues, the examiner has failed to provide a reason why the references *should* be combined. "Obvious to try" is not the standard for patentability under 35 U.S.C. § 103. *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1599 (Fed. Cir. 1988).

Assuming *arguendo* that the examiner is relying on the word "monolithic" used by Dubuisson for motivation,⁸ such reliance appears misplaced. "Monolithic" as defined in the McGraw-Hill DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS, second edition, means "constructed from a single crystal or other single piece of material" (page 1046). For example, a "monolithic ceramic capacitor" is defined as

A capacitor that consists of thin dielectric layers interleaved with staggered metal-film electrodes; after leads are connected to alternate projecting ends of the electrodes, the assembly is compressed and sintered to form a solid monolithic block" (*Id.*, page 1046).

The scientific/technical definition of "monolithic" as a "single element" is consistent with the disclosure in Dubuisson referring to joining two superposed substrates together "to form a *single monolithic*

⁸ The word "monolithic" is emphasized in the examiner's discussion of Dubuisson in the Substitute Answer on page 4 and the word "large" is used to characterize Dubuisson on page 5.

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element (by sintering, gluing, etc.)" (column 3, lines 3-13). Thus, Dubuisson does not appear to suggest forming a huge laminate, e.g. with X-Y planar dimensions of one or more meters.

Since, on this record, the examiner has not provided factual evidence sufficient to support his position, we reverse the rejection. A conclusion of obviousness must be based on evidence, not unsupported arguments.

2. Rejection of claims 1-2 as unpatentable over Kaun

Kaun describes electrochemical devices, e.g., batteries, capacitors and fuel cells, comprising a plurality of cells, wherein each individual cell includes a

laminate cell preassembly comprised of alternatively arranged generally parallel positive and negative electrodes, and a separator and/or electrolyte formed of a very thin ionic-conductive ribbon-like layer configured in a tight serpentine manner and physically interposed between the electrodes. This basic laminate cell preassembly is layered on itself, such as by winding or coiling it as a spiral to form a laminate cell membrane, in the general shape of a flat disc and the cell membrane is sandwiched between plate-like current collectors with the electrode interfaces primarily perpendicular to the current collectors, to make up an electrochemical cell. (column 3, lines 36-48)

The component materials for the electrodes, separator and/or electrolyte may be (a) in a flexible form which is extruded and wound as thin ribbons, (b) in liquid or powder form which can be mixed with a binder/solvent system to be extruded, tape cast or stencilled, or (c) applied directly by plasma sputtering, for forming the intended ceramic and/or metallic layers (column 8, lines 9-29). Example 2

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illustrates coiling the cell preassembly on itself; compressing the coil slightly radially and axially between rollers and heated stylus to assure electrolyte contact between adjacent layers; and, sintering both to remove binder and to form a single disc.

According to the examiner,

[s]tacking foils using thermal bonding means necessarily bonds a third foil on the surface of said second foil a displacement or distance from the prior weld formed between previously bonded first and second foils. (Substitute Answer page 6, last sentence)

Initially, we do not agree with the examiner's determination that thermal bonding a coiled laminate necessarily results in staggered welds. For example, if the four separate cell assemblies 70a-70d in Figure 5 of Kaun were coiled as shown, compressed slightly, and heated with a stylus applied at a point corresponding to "80" in the figure such that bonding occurred in a line between "80" and the center core of the coil, then the "bond" between each of the four cell assemblies or "layers" would be *coincident*, albeit at different relative distances from the "end" of each layer as measured from where that layer attaches to the central core. Thus, it appears that the "foils" are displaced from the welds in Kaun while the welds themselves are coincident. The examiner has presented no evidence that it was known in the art to bond superimposed green-tape foils using staggered welds as claimed. The process disclosed by Kaun for bonding or sealing layered cell assemblies is different than the claimed method, although it includes steps of superimposing cell assembly "foils" and sealing or "bonding" the layers.

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Based on the insufficient prior art evidence of obviousness presented by the examiner, we are constrained to reverse the examiner's rejection.

3. Rejection of claims 1-2 as unpatentable over Kaun in view of Kotchick and/or Huebner

a. Kaun in view of Kotchick

Kaun has been described above.

Kotchick describes a method of fabrication of a fuel cell core. As depicted in Figure 9, anode material (e.g., a cermet of cobalt or nickel metal with stabilized zirconia), cathode material (e.g., strontium lanthanum manganite), and electrolyte material (e.g., yttria-stabilized zirconia) or interconnect material (e.g., magnesium-doped lanthanum chromite) are each mixed with a binder system in a separate mixer 80 to have a plastic consistency, then roll milled 82 into single layer tapes of each material 30 (anode), 31/33 (electrolyte/interconnect), 32 (cathode). During this step each tape is friction bonded to the adjacent tape(s). Three of the single layer tapes are then roll milled into a trilayer tape (which Kotchick designates as electrolyte and interconnect walls comprising 30/31/32 and 30/33/32, respectively). After cutting each trilayer to the appropriate size and molding one or both into a desired wall shape, the formed electrolyte walls are alternately stacked with the formed interconnect walls until a fuel cell core of a desired size is obtained. Although not necessary, corrugating the electrolyte tape by compression molding, vacuum formation or gear forming, achieves

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greater surface area, thereby increasing fuel cell efficiency. The cell core is heated in a two-step cycle wherein a temperature of approximately 1000E F extracts the binder and the second step heating to approximately 1200-1600E F sinters the core to fuse the remaining ceramic particles to form a rigid fuel cell core. (column 5, lines 4-20; column 9, line 37 - column 10, line 57)

The examiner has failed to make the required factual inquiries mandated by *Graham v. John Deere, Co.* 383 U.S. 1 (1966); and, has failed to explain why or how one having ordinary skill in the art would have combined the teachings of Kaun and Kotchick. Since, on this record, the examiner has not established a *prima facie* case of obviousness, we reverse the rejection.

b. Kaun in view of Huebner

Kaun has been described above.

Huebner relates to structural panels, e.g., for use in aircraft components, which incorporate a "honeycomb core" (column 1, lines 7-12). Specifically, Huebner fabricates a corrosion-resistant, impact-resistant, and heat-resistant core by welding or otherwise melting thermoplastic sheets together at spaced locations, thus eliminating the use of thermosetting adhesives, solvents and other chemical bonding agents. In one embodiment, thermoplastic sheets are welded and then expanded to form a honeycomb core. In another embodiment, the sheets are

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corrugated prior to welding (abstract; column 3, line 48 to column 4, line 31). The thermoplastic resin can be reinforced with fillers of metal, glass, carbon, ceramic, or other plastics (column 4, lines 65-68). Figure 1 illustrates staggered weld nodes 35, 55 between sheets 20-27.

Although the rejection is phrased as "Kaun in view of Huebner," the examiner's position appears to be that it would have been obvious to one of ordinary skill in the art to use an induction-coil welding technique which heats metallic ferrous particles deposited on node lines by a magnetic field to perform the welding in Huebner's thermoplastic resin honeycomb core fabrication method as suggested by Huebner (column 6, lines 3-8) and then to modify that welding technique by using the stenciling step of Kaun to deposit the metallic ferrous particles on the node lines because screen printing is considered an equivalent metal particle application process in the art (Substitute Answer page 8). The examiner (i) maintains the thermoplastic resin sheet of Huebner could be considered a foil corresponding to appellant's disclosure because "polymeric sheets heavily loaded with organic or volatile components are used to form fired articles having high porosity" and Ketcham suggests thin materials can be molded in the green state and subsequently sintered to a dense or porous structure, and (ii) further notes the specification fails to provide an example of a suitable foil composition or contents (Supplemental Answer paragraph bridging pages 14-15).

We agree with appellant that Huebner does not disclose or suggest green-tape foil substrates (Brief page 9) as described in the specification, i.e., green-tape foils "consist[ing] of thin foils of alumina in the raw state or of another like or analogous material, which have a

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printed circuit on one or both of their surfaces" (page 1, lines 11-13). Thermoplastic resin and alumina do not have the same chemical structure and the examiner has not explained why one of ordinary skill in the art would have considered them to be "analogous" structures. Secondly, the examiner has not explained what motivation the skilled artisan would have had for printing a circuit from iron, i.e., ferrous, metallic particles as opposed to more conventional and much more efficient metals, such as silver, gold or copper. Third, the examiner has not pointed out where Huebner teaches or suggests a "heavy" load of ceramic filler. Fourth, even though a patent application need not provide a working example, here appellant's disclosure explicitly recites raw alumina as an example of green material. Therefore, the specification does provide an example of a suitable foil composition. Fifth, the examiner has not cited Ketcham as part of this rejection. When a reference is relied on to support a rejection even in a "minor capacity," ordinarily that reference should be positively included in the statement of rejection. *In re Hoch*, 428 F.2d 1341, 1342 fn 3, 166 USPQ 406, 407 fn 3 (CCPA 1970). Thus, we have not considered the Ketcham disclosure in this rejection. Therefore, this rejection is reversed.

c. Kaun in view of Kotchick and Huebner

Kaun, Kotchick and Huebner have been described above.

According to the examiner,

...to combine the ribbon printing step of Kaun in the process of Heubner [sic] to form Applicant's claimed invention would have been obvious to one having had

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ordinary skill in the art since such a combination of forming the Kaun fuel cell using the Heubner [sic] honeycomb design is shown to be conventional in Kotchick. (Substitute Ans. page 8)

The examiner has not explained why or how one of ordinary skill in the art would have combined the isolated method steps of the references to obtain the claimed invention, e.g., why or how the continuous ribbon printing step of Kaun would have been used to modify the spaced welding process of Huebner, or what motivation one of ordinary skill in the art would have had to expand the specific laminated structure of Kaun to form a honeycomb core fuel cell, especially in view of Kaun's explicit disclosure of *compressing* the laminate on itself to assure electrolyte contact between adjacent layers. Thus, the foregoing reasons and those reasons given above in rejections 3a. and 3b., we find that the examiner has not established a *prima facie* case of obviousness. Therefore, this rejection is reversed.

4 & 5. Rejection of claim 3 as unpatentable over Kaun, Kotchick and Heubner in view of Buckley and Rejection of 5-7 as unpatentable over Kaun, Kotchick and Heubner in view of Italplastic

Since all the limitations of independent claim 1 are not disclosed or suggested by the applied prior art of Kaun, Kotchick and Heubner under 35 U.S.C. § 103, we will not sustain the rejection of dependent claims 3 and 5-7.⁹ Dependent claims are nonobvious under § 103 if the independent claims

⁹ We have also reviewed the Buckley and Italplastic references additionally applied in the rejection of dependent claims 3 and 5-7, respectively, but find nothing therein which remedies the deficiencies of Kaun, Kotchick and Heubner discussed above regarding claim 1.

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from which they depend are nonobvious. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

6. Rejection of claims 1-3 and 5-7 as unpatentable over Hamuro in view of Newton

Hamuro has been described above.

Newton is directed to the production of collated forms, e.g., for use in business processing machines such as tabulators and data processing machines (column 1, lines 28-35). Adhesive is applied as short strips to successive sheets in a stack in a staggered pattern, usually not exceeding three occurrences in a stack, so that the stack is only slightly thicker than the total thickness of the sheets comprising the stack (column 2, lines 23-60), thus addressing such problems in the prior art as form misalignment; forms shifting during folding; stiffening effect and thickness buildup due to glue buildup, etc. (column 1, line 46 - column 2, line 2).

The examiner acknowledges that Hamuro does not teach staggering welds between successively welded sheets (Substitute Ans. page 10, paragraph one). However, according to the examiner, it would have been obvious

to stagger the tack welds between successive Hamuro et al. sheets applied to form a multilaminate as does Newton ... to reduce the tendency of alignment or registration defects caused by vertical alignment of bonds as taught by Newton. (Substitute Ans. page 10)

Appellant argues there is no reason to combine Hamuro and Newton because Hamuro does not disclose or suggest a problem with coincident welding of green-tape foils and because Newton is

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non-analogous art. Moreover, substantial structural modification would have to be made to the mechanism of Hamuro to permit either additional lateral movement of the hot irons 11 or to provide additional hot irons and selective control means therefore. Thus, appellant argues, the examiner is engaged in hindsight reconstruction of the claimed invention. (Brief pages 14-19; Reply Brief pages 5 and 7-9)

Whether Hamuro and Newton are analogous prior art is a question of fact based on two criteria (1) whether the art is from the same field or endeavor regardless of the problem addressed, and (2) if not, whether the reference is still reasonably pertinent to the particular problem with which the inventor is involved. *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1061 (Fed. Cir. 1992).

Here, Hamuro relates to laminating ceramic capacitors while Newton relates to producing collated paper business forms. Nonetheless, the examiner argues Hamuro and Newton are still combinable because

...Newton is "reasonably pertinent" to Appellant's particular problem because of one having had ordinary skill in the art would have had a reasonable expectation that a reference directed to reducing the misalignment, uneven stacking, or sharp sloping (col. 1, lines 59-60 of Newton) **caused by the increase in thickness of a stack resulting from a total glue application** on each form of the stack to produce a thick glue line, or "tenting", would be helpful improving the problem of misregistration and stacking defects in tack welded green sheets. (emphasis added, Substitute Answer sentence bridging pages 16-17).

However, appellant's particular problem is not misalignment caused by an "increase" in stack thickness in the weld area, but rather a "decrease" in stack thickness in the weld area. Moreover, glue application techniques would not seem to be reasonably pertinent to welding techniques.

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Therefore, we agree with appellant that Newton is not properly combinable with Hamuro as analogous art. (Brief pages 3, 7 and 19)

In addition, we agree with appellant that the examiner has failed to provide a reason or motivation to combine Hamuro and Newton.

As stated in *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988):

The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure. [citations omitted]

The court reemphasized at 473, 5 USPQ2d at 1531:

There must be a reason or suggestion in the art for selecting the procedure used, other than the knowledge learned from the applicant's disclosure.

It is precisely that requisite reason or suggestion to employ staggered welds to bond a stack of green-tape foils which the combined prior art teachings lack. Hamuro does not disclose or suggest a problem heat welding ceramic green sheets (i.e., foils) together as they are individually stacked by coincident successive welding at the same location on each sheet using hot iron 11. The examiner has not provided any evidence that heat welding and glue are equivalent bonding means or that paper and green-tape foils are equivalent "sheets". At best, Newton's disclosure might invite one of ordinary skill in the art to try to use staggered glue deposit to bond green sheets (i.e., foils) together as they are individually stacked. However, that is not the claimed

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invention. We find that the only incentive to use staggered welding to anchor ceramic green sheet (i.e., foils) together in this case is provided by appellant's disclosure. Accordingly, we reverse the examiner's rejection of claims 1-3 and 5-7 under 35 U.S.C. § 103 over Hamuro in view of Newton.

With regard to the Baesse Declaration, since the prior art relied on by the examiner fails to establish a *prima facie* case of obviousness, we need not consider the appellant's rebuttal evidence. *In re Fine*, 837 F.2d 1071, 1076, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988).

OTHER MATTERS

In the event of further prosecution, the examiner and appellant should consider:

(a) there is an Information Disclosure Statement filed January 27, 1993 which apparently has not been entered into the file and considered by the examiner; and,

(b) pending claims 6 and 7 still recite "inclusive" after "Claim 1" in their respective first lines, contrary to the claims listed in appellant's APPENDIX as being correct by the examiner.

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CONCLUSION

To summarize, the decision of the examiner (1) to reject claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Hamuro, Ketcham and Dubuisson is **reversed**, (2) to reject claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Kaun is **reversed**, (3) to reject claims 1 and 2 under 35 U.S.C. § 103 as unpatentable over Kaun in view of Kotchick and/or Huebner is **reversed**, (4) to reject claim 3 under 35 U.S.C. § 103 as unpatentable over Kaun, Kotchick and Huebner in view of Buckley is **reversed**, (5) to reject claims 5-7 under 35 U.S.C. § 103 as unpatentable over Kaun, Kotchick and Huebner in view of Italplastic is **reversed**, and (6) to reject claims 1-3 and 5-7 under 35 U.S.C. § 103 as unpatentable over Hamuro in view of Newton is **reversed**.

REVERSED

MICHAEL SOFOCLEOUS)
Administrative Patent Judge)
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) BOARD OF PATENT
THOMAS A. WALTZ) APPEALS
Administrative Patent Judge) AND
) INTERFERENCES
)
)
)

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Serial No. 07/931,330

CAROL A. SPIEGEL)
Administrative Patent Judge)

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APPLICATION NO. 07/931,330

APJ SPIEGEL

APJ WALTZ

APJ SOFOCLEOUS

DECISION: **XXXED**

Prepared By: S. Davis

DRAFT TYPED: 24 Feb 00

FINAL TYPED: