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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

_____

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte THOMAS S. COHEN and MARK W. GAILUS

_____

Appeal No. 98-2124
Application No. 08/454,898[1]

_____

ON BRIEF

_____

Before McCANDLISH, ***Senior Administrative Patent Judge***, MEISTER and NASE, ***Administrative Patent Judges***.

MEISTER, ***Administrative Patent Judge***.

DECISION ON APPEAL

Thomas S. Cohen and Mark W. Gailus (the appellants) appeal from the final rejection of claims 1, 2, 4, 5, 10, 12, 13, 15, 21 and 22. Claims 11, 14, 16, 18-20 and 31 have been indicated

[1] Application for patent filed May 31, 1995.

as being allowable subject to the requirement that they be rewritten to include all the subject matter of the claims from which they depend. Claims 6-9, the only other claims present in the application, stand allowed.

We AFFIRM-IN-PART.

The appellants' invention pertains to an electrical connector that is adapted to be mounted on a back plane or circuit board (i.e., mother board) and a back plane or circuit board (i.e., mother board) assembly that includes an electrical connector. Independent claims 1 and 15 are further illustrative of the appealed subject matter and copies thereof may be found in the APPENDIX to the brief.

The references relied on by the examiner are:

Piorunneck	5,024,609	Jun. 18, 1991
Biechler et al. (Biechler)	5,052,936	Oct. 1, 1991
Baechtle	5,137,454	Aug. 11, 1992
Yohn et al. (Yohn)	5,482,474	Jan. 9, 1996
		(filed May 17, 1994)

Claims 1, 2, 4, 5, 10, 12, 13, 15, 21 and 22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Biechler.

Claims 1, 2, 4, 5, 10, 12, 13, 15, 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being obvious over either Biechler or Yohn "either one" in view of Piorunneck and Baechtle.

The rejections are explained on pages 3-6 of the answer. The arguments of the appellants and examiner in support of their respective positions may be found on pages 6-26 of the brief and page 6 of the answer.

OPINION

As a preliminary matter, we base our understanding of the appealed subject matter upon the following interpretation of the terminology appearing in the claims. In independent claim 1, subparagraph b) iii), we interpret "wherein the beam portion . . . by the spring force generated by the bend in the beam portion" to be -- wherein the beam portion of each signal contact has the capability of exerting a spring force generated by the bend in the beam portion in order to make electrical

contact with a corresponding contact pad on the first printed circuit board --. This interpretation is necessitated because (1) "the spring force" has no antecedent basis and (2) a "first printed circuit board" has been previously set forth in the preamble. Similarly, in independent claim 15, subparagraph e) ii), we interpret "wherein the signal contacts make electrical contact to the contact pads by the spring force generated by the bend in the signal contacts" to be -- wherein the signal contacts have the capability of making electrical contact to the pads by a spring force generated by the bend in the signal contacts --. In subparagraph e) iii) of claim 15 we further interpret "wherein the extending portions make electrical contact to the ground contact pads by the spring force generated by the bend in the extending portion" to be -- wherein the extending portions have the capability of making electrical contact to the ground contact pads by a spring force generated by the bend in the extending portion --. Both of these interpretations of claim 15 are also necessitated by the fact that "the spring force" has no antecedent basis.

THE § 102(b) REJECTION

Considering first the § 102(b) rejection of claims 1, 2, 12, 13, 15, 21 and 22, the examiner, in regard to independent claim 1, considers that

> Biechler et al discloses an electrical connector adapted to be mounted to a first printed circuit board comprising a dielectric housing (figure 1, element 22), a plurality of signal contacts disposed within the housing (figure 3, element 92[sic 90]), each such signal contact comprising: a tail portion (figure 3, element 92) extending from a first surface (figure 3, element 66) of the housing, a tail portion extending from a first surface of the housing (figure 3, element 92); a straight portion within the housing (figure 3, element 90), and a beam portion extending from a second surface of the housing, the beam portion having a bend therein (figure 2a, element 96), wherein the beam portion of each signal contact forms a spring (column 5, lines 48-51), and at least one ground contact within the housing (figure 3, element 78), the ground contact having a portion parallel with the straight portion of the signal contacts within the housing (figure 3). [Answer, page 3.]

In regard to independent claim 15 the answer states that

> Biechler et al. discloses a back plane assembly comprising a back plane (figure 1, element 102), a plurality of signal contact pads formed on a surface of the back plane (figure 1, element 106), at least one ground contact pad formed on the surface of the back plane (figure 1, element 108[)], a daughter card (figure 1, element 12), a connector mounted on an edge of the daughter card (figure 1, element 24), the connector comprising: . . . . [Pages 4 and 5.]

The appellants argue that the claims under consideration are not anticipated since Biechler does not address the specific problems which they address. We must point out, however, that anticipation by a prior art reference does not require either the inventive concept of the claimed subject matter or the recognition of inherent properties that may be possessed by the prior art reference. ***Verdegaal Bros., Inc. v. Union Oil Co.,*** 814 F.2d 628, 633, 2 USPQ2d 1051, 1054 (Fed. Cir. 1987). Moreover, the law of anticipation does not require that the reference teach what the appellants are claiming, but only that the claims on appeal "read on" something disclosed in the reference. ***See Kalman v. Kimberly-Clark Corp.***, 713 F.2d 760, 772, 218 USPQ 781, 789 (Fed. Cir. 1983).

With respect to independent claim 1 the appellants contend that the tail portions of the spring contact arms 75,91 of Biechler are disposed entirely within the housing, rather than extending "from a first surface of housing" as claimed. This argument is not commensurate in scope with the claimed subject matter. That is, this limitation does not require that the tail portions extend from the ***exterior*** surface of the housing

as the appellants would apparently have us believe, and it is well settled that features not claimed may not be relied upon in support of patentability. ***In re Self***, 671 F.2d 1344, 1348, 213 USPQ 1, 5 (CCPA 1982). As the examiner has correctly noted, the tail portions (i.e., spring contact arms 75,91) of the contact members 74,90 of Biechler extend from an ***interior*** surface of the housing (see, e.g., Fig. 5) and, thus, Biechler's arrangement "reads on" the recitation of the tail portion "extending from a first surface of the housing" as broadly set forth in independent claim 1.

The appellants also contend that (1) the solder tails 88 (i.e., the ***end*** of each of the beam portions 82,94 - see, e.g., Fig. 2B) on the contact members 74,90 are described by Biechler as being "stiff," which terminology "is typically used to describe something that is not flexible or pliant" (brief, page 7) and (2) these solder tails are not meant to make contact with the pads on the circuit or mother board (i.e, back plane) by spring force. Such contentions are not persuasive.

As to contention (1), it is true Biechler in lines 20 and 21 of column 2 states that each of the contact members 74,90

"has an end [i.e., the ***end*** 88 of each of the arms or beam portions 82,94] opposite the ***resilient*** end that is stiff" (emphasis added), but we must point out that Biechler does not say that the ***arms*** 82,94 (which form Biechler's beam portions) are stiff. Moreover, Biechler expressly states that the ***spring*** contact arms 75,91 (col. 5, lines 36 and 37) of the contact members 74,90 "are ***resilient*** elements" (col. 5, lines 48 and 49; emphasis added). Inasmuch as the contact members 74,90 (1) are made of the same material throughout their length and (2) the spring contact arms 75,91 (see Fig. 3) are resilient, it follows that both the arms or beam portions 82,94, as a whole (including their end portions or solder tails 88), must likewise be resilient. It does not follow, however, that just because Biechler refers to the end portions or solder tails 88 as being "stiff," that (1) the arms or beam portions 82,94 are likewise stiff or (2) the end portions or solder tails 88 and the arms or beam portions 82,94 do not have the capability of exerting a spring force as claimed. Not only does the fact that the end portions or solder tails 88 of Biechler are described as being "stiff" not preclude them from being capable

of providing spring force by themselves (i.e., springs are commonly manufactured with varying degrees of stiffness, e.g., a spring on a railway car may be considered to be "stiff" when compared to a watch spring) but, since the arms or beam portions 82,94 are resilient, these beam portions have the inherent capability of providing a spring force as claimed irrespective of whether the end portions or solder tails 88 possess spring-like characteristics.

As to contention (2), inasmuch as the beam portions 82,94 of Biechler are formed of a resilient material, they inherently would exert a spring force when the solder tabs or beam portions 88 "***bear against*** the pads **106, 108**" (col. 5, lines 67 and 68; emphasis added). With respect to claims 1, 2, 12 and 13, we also observe that these claims are directed to an electrical connector ***per se,*** rather than the combination of a connector and back plane or mother board. Thus, in independent claim 1, the "adapted to . . ." recitation in the preamble and the "wherein . . ." clause in subparagraph b) iii), merely set forth functions which the connector must be structurally capable of performing (**see, e.g., *In re Venezia***, 530 F.2d 956,

959, 189 USPQ 149, 151-52 (CCPA 1976)), and it is well settled that if a prior art device inherently possesses the capability of functioning in the manner claimed, anticipation exists regardless of whether there was a recognition that it could be used to perform the claimed function (***see, e.g., In re Schreiber***, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997)).

With respect to claims 12 and 13 the appellants argue that Biechler does not teach that the contacts 90 and 74 might be disposed in different portions of the housing. This is simply not the case. Viewing Figs. 3 and 4 of Biechler, it is readily apparent that of the contact elements 90 and 74 are positioned in the left-hand housing 62 of subassembly 60 and certain of the contact elements 90 and 74 are positioned in the right-hand housing 62 of the subassembly 60. Moreover, the broad recitation of first and second "portions" does not preclude the arrangement of only one of these housings when considered alone wherein the "portions" are of integral, one-piece construction with the housing.

With respect to claim 21 the appellants argue that Biechler does not show grooves as claimed. We disagree. Figs. 4 and 5 of Biechler clearly show the solder tabs or beam portions 88 passing through grooves in the lower portion of the vertical side walls 40 of the housing 24. Fig. 1 of Biechler clearly shows the solder tabs or signal contacts passing through the lower portion of the side walls 40 in such a manner that a portion of the lower side wall is interleaved between each of the solder tabs or signal contacts 88. Thus, viewing Figs. 1, 4 and 5 together, it is readily apparent that the grooves shown in Figs. 4 and 5 are provided for each of the solder tabs or signal contacts 88.

In view of the foregoing, we will sustain the rejection of claims 1, 2, 12, 13, 15, 21 and 22 under 35 U.S.C. § 102(b) as being anticipated by Biechler.

We now consider the § 102(b) rejection of claims 4, 5, and 10. As to claim 4, the examiner contends that Biechler teaches a beam portion which is tapered in Fig. 2B. Apparently the examiner is referring to the tapered transition which is shown, for example, just below the lead line for the numeral 80. We must point out, however, that this tapered transition occurs in

the ***straight*** portion of the contact 74 which is ***within*** the housing, whereas claim 4 requires the ***beam portion*** to be tapered (which beam portion is recited in parent claim 1 as ***extending from*** a second surface of the housing). As to claim 5 (and claim 10 which depends therefrom) the examiner contends that Biechler shows a sheet at 78. In our view, the examiner is attempting to expand the meaning of "sheet" beyond all reason. Biechler's numeral 78 depicts a contact area on the resilient arms of the contact members that have gold or nickel plated thereon (see col. 6, lines 2-4). Terms in a claim should be interpreted in a manner consistent with the specification and construed as those skilled in the art would construe them (***In re Bond***, 910 F.2d 831, 833, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990), ***Specialty Composites v. Cabot Corp.***, 845 F.2d 981, 986, 6 USPQ2d 1601, 1604 (Fed. Cir. 1988) and ***In re Sneed***, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983)). We can think of no circumstances under which the artisan, consistent with the appellants' specification, would construe the small area of plating on the contacts of Biechler to correspond to a "sheet" as claimed.

For the reasons stated above, we will not sustain the rejection of claims 4, 5 and 10 under 35 U.S.C. § 102(b) as being anticipated by Biechler.

THE § 103 REJECTIONS

We consider first the rejection of claims 1, 2, 12, 13, 15, 21 and 22 under 35 U.S.C. § 103 based on the combined teachings of Biechler, Piorunneck and Baechtle. Initially we note that, since lack of novelty is the epitome of obviousness (see ***In re Fracalossi***, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982)), the § 103 rejection of these claims is sustainable based on the teachings of Biechler alone. Moreover, to the extent that the beam portions 82,94 and solder tails 88 of Biechler might be considered not to have the capability of providing a spring force in the claimed manner, we share the examiner's view that it would have been obvious to make solder tails 88 and beam portions resilient in order to apply a spring force as taught by Baechtle in column 2, lines 55-66 and column 6, lines 45-51. The examiner has additionally relied on Piorunneck for a teaching of ground contacts. While we agree with the examiner that Piorunneck provides such a

teaching, we must point out that the designation of certain of the contacts to be "ground" contacts and others to be "signal" contacts is merely a statement of intended use which cannot be relied on to distinguish structure from the prior art. ***See, e.g., In re Schreiber, supra***, ***In re Yanush***, 477 F.2d 958, 959, 177 USPQ 705, 706 (CCPA 1973) and ***In re Casey***, 370 F.2d 576, 580, 152 USPQ 235, 238 (CCPA 1967). Moreover, Biechler fairly suggests such an arrangement in column 3, lines 65-68, and column 1, line 29.

The appellants argue that there is no suggestion to combine the teachings of Biechler and Baechtle in the manner proposed by the examiner. We disagree. Baechtle clearly teaches the advantages of providing a resilient solder tail 124 having a spring force for the purpose of accommodating variations in the surface of the mother board in order that the solder tails make proper contact with the mother board before they are soldered (see, e.g., column 2, lines 46-49; column 3, lines 50-54; column 6, lines 51-56), thereby avoiding deficient solder joints due to improper contact when the solder tails are actually subsequently soldered to the mother board (see column

3, lines 14-21). Accordingly, one of ordinary skill in this art would have been motivated to make solder tails 88 of Biechler resilient in order to apply a spring force as taught by Baechtle, and thus achieve Baechtle's expressly stated advantage of providing proper contact between the solder tails and the mother board prior to soldering, thereby avoiding the disadvantage of a deficient solder joint. In this regard, it should be noted that there is no claim limitation which would preclude the solder tails from being subsequently soldered.

The appellants also contend that Baechtle teaches away from providing solder tails that are designed to impart a "normal" force to the mother board since Baechtle desires to apply a low force. This argument is not commensurate with the scope of the claimed subject matter inasmuch as no particular amount of force as been set forth. Moreover, the prior art disclosed by Baechtle in column 2 teaches providing a "normal" force (see line 57).

The appellants also contend that the references do not address their problem of durability, insertion force, cross-talk and signal reflections. We must point out, however, that “[a]s long as some motivation or suggestion to combine the

references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor" (***In re Beattie***, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992)) and all the utilities or benefits of the claimed invention need not be explicitly disclosed by the prior art references to render the claim unpatentable under section 103 (***see In re Dillon***, 919 F.2d 688, 692, 696, 16 USPQ2d 1897, 1901, 1904 (Fed. Cir. 1990) (in banc), ***cert. denied***, 500 U.S. 904 (1991)). ***See also In re Kemps***, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996) ("the motivation in the prior art to combine the references does not have to be identical to that of the applicant to establish obviousness"). Moreover, Baechtle is directed to the problem of reducing the insertion force (see, e.g., column 1, lines 19 and 20).

In view of the above, we will sustain the rejection of claims 1, 2, 12, 13, 15, 21 and 22 under 35 U.S.C. § 103 based on the combined teachings of Biechler, Piorunneck and Baechtle.

Turning to the rejection of claims 4, 5 and 10 under 35 U.S.C. § 103 based on the combined teachings of Biechler,

Piorunneck and Baechtle, the examiner's position is bottomed on the notion that Biechler teaches a tapered beam portion (claim 4) and a ground comprising a sheet of conductive material (claims 5 and 10). We disagree for the reasons stated above with respect to the § 102 rejection of these claims. We have carefully reviewed the teachings of Piorunneck and Baechtle, but find nothing therein which would overcome the deficiencies of Biechler that we have noted above. Accordingly, we will not sustain the rejection of claims 4, 5 and 10 under 35 U.S.C. § 103 based on the combined teachings of Biechler, Piorunneck and Baechtle.

Turning next to the rejection of claims 1, 2, 12 and 13, under 35 U.S.C. § 103 as being unpatentable over Yohn in view of Piorunneck and Baechtle, the appellants argue that there is no teaching or suggestion in Yohn of making contact with pads on a circuit board by spring force as claimed. We are unpersuaded by such a contention. Yohn discloses an electrical connector having a dielectric housing 5, a plurality of contacts 6 embedded within the housing (column 5, line 3) which have a tail portion 10 extending from a first surface of the housing, a straight portion within the housing (see Fig. 1),

and a beam portion 8 extending from a second portion of the housing and that has a bend therein (see Figs. 1 and 7), wherein the beam portions (1) make contact with a corresponding contact pad 11 on a circuit board 3 and (2) are resilient in order to accommodate any unevenness of the surface of the circuit board 3. Since the beam portions 8 of Yohn are resilient in order accommodate uneveness in the circuit board 3, they inherently contact the circuit board with a spring force. Indeed, such inherent contact with a spring force is confirmed by Baechtle (see, e.g., column 2, lines 30-66). As we have noted above with respect to the § 103 wherein Biechler is employed as the primary reference, (1) the designation of certain of the contacts to be "ground" contacts and others to be "signal" contacts is merely a statement of intended use which cannot be relied on to distinguish structure from the prior art (***see, e.g., In re Schreiber, supra***, ***In re Yanush, supra***, and ***In re Casey, supra***) and (2) there is no claim limitation which would preclude the ends of the beam portions (i.e., solder tails) from being subsequently soldered. Therefore, we will sustain the rejection of claims 1, 2, 12 and

13 under 35 U.S.C. § 103 based on the combined teachings of Yohn, Piorunneck and Baechtle.

Turning to the rejection of claims 4, 5, 10, 15, 21 and 22 under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Yohn, Piorunneck and Baechtle, we find nothing in the combined teachings of these references which would fairly suggest a tapered beam portion (claim 4) or a sheet of conductive material (claims 5 and 10). With respect to claims 15, 21 and 22, the examiner apparently intends to totally reconstruct the connector of Yohn to provide, in addition to a back plane or mother board, (1) a daughter card and (2) a mechanism to mount Yohn's connector on an edge of the daughter card. There is simply nothing in the combined teachings of Yohn, Piorunneck and Baechtle which would fairly suggest such a wholesale modification of Yohn. Accordingly, we will not sustain the rejection under 35 U.S.C. 103 of claims 4, 5, 10, 15, 21 and 22 based on the combined teachings of Yohn, Piorunneck and Baechtle.

In summary:

The rejection of claims 1, 2, 12, 13, 15, 21 and 22 under 35 U.S.C. § 102(b) as being anticipated by Biechler is affirmed.

The rejection of claims 4, 5 and 10 under 35 U.S.C. § 102(b) as being anticipated by Biechler is reversed.

The rejection of claims 1, 2, 12, 13, 15, 21 and 22 under 35 U.S.C. § 103 based on the combined teachings of Biechler, Piorunneck and Baechtle is affirmed.

The rejection of claims 4, 5 and 10 under 35 U.S.C. § 103 based on the combined teachings of Biechler, Piorunneck and Baechtle is reversed.

The rejection of claims 1, 2, 12 and 13 under 35 U.S.C. § 103 based on the combined teachings of Yohn, Piorunneck and Baechtle is affirmed.

The rejection of claims 4, 5, 10, 15, 21 and 22 under 35 U.S.C. § 103 based on the combined teachings of Yohn, Piorunneck and Baechtle is reversed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

HARRISON E. McCANDLISH Senior Administrative Patent Judge	)
JAMES M. MEISTER Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
JEFFREY V. NASE Administrative Patent Judge	)

JMM/jlb

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