

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte PETER MATIC, RICHARD K. EVERETT,  
VIRGINIA G. DEGIORGI, and ANDREW B. GELTMACHER

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Appeal No. 1999-2393  
Application 08/845,848

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ON BRIEF

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Before BARRETT, LALL, and LEVY, Administrative Patent Judges.  
LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection<sup>1</sup> of claims 1 to 9. Claims 10

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<sup>1</sup> Two amendments after the final rejection were filed as Paper No. 10 and 13 and both have been approved for entry by the examiner. See Paper Nos. 11 and 14 respectively.

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to 12 have been withdrawn from consideration, see Paper No. 3. Claims 13 to 15 have been indicated by the examiner to have allowable subject matter, see answer at page 1.

The disclosed invention is directed to a material test specimen for conducting stress and strain measurements that is tailored to provide information on multiaxial stress and strain states in a controlled manner under tensile deformation. The test specimen geometry employs combinations, commonly called "stress concentrators", that generate stress and strain gradients in the material under test. The geometry is composed of three geometric features: first, a primary outer geometry of uniform cross-section suitable for a tension test machine which generates a global deformation field; secondly, a secondary inner geometry that produces nonuniform deformation from the global deformation; and lastly, a set of tertiary inner geometries that modulate the nonuniform deformation to promote or avoid fracture at various strain and stress states as desired. After a test, a stress analysis is performed utilizing appropriate analytical or computational simulation to recreate the stress and strain histories throughout the specimen. Correlation between the physically

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observed event fracture and the calculated stress and strain states are used to establish the fracture limits. Further understanding of the invention can be had by the following typical claim.

1. A test specimen to determine critical strain and stress states for multiaxial fracture, comprised of:

a material to be tested; and

said material having a geometry that will generate a global deformation field.

The examiner relies on the following references:

Brull 1986	4,590,804	May 27,
Bronowicki et al. (Bronowicki) 1991	5,022,272	June 11,

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as anticipated by Bronowicki, while claims 3 to 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Bronowicki in view of Brull.

Rather than repeat the arguments of appellants and the examiner, we make reference to the brief and the answer for the respective details thereof.

OPINION

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We have considered the rejections advanced by the examiner and the supporting arguments. We have, likewise, reviewed the appellants' arguments set forth in the brief.

We affirm.

Appellants have discussed the two grounds of rejection separately in the brief. We do likewise.

35 U.S.C. § 102

The examiner rejects claims 1 and 2 as being anticipated by Bronowicki by citing element 10 and col. 4 and line 14 of Bronowicki at page 3 of the examiner's answer. Appellants argue, brief at page 11, that "[t]he device taught by *Bronowicki et al.* [is] designed for use in low strain situations whereas the Appellant's [sic] claimed device is for use in areas of high or large plasticity." Appellants also argue, id., that "the structures taught by *Bronowicki et al.* are all elastic, whereas the Appellant's [sic] claimed device defines large scale plasticity. The device taught by *Bronowicki et al.* is an empirical determination where the Appellant's [sic] claimed device is quantitative in nature." Appellants also contend, id., that Bronowicki refers to "a structural deformation or elongation, by which is meant a

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global deformation caused by temperature change, inertial forces or other causes affecting the entire structural member." Appellants conclude, *id.* at 12, that "*Bronowicki et al.* could not be used to measure the stress and strain within the Appellant's [sic] test specimen." The examiner responds, answer at page 5, that "the major portion of the Appellant's [sic] argument is the aspects of the intended use and the fact that the cited reference to *Bronowicki et al.*'s device is used for another purposes [sic] than the Appellant's [sic] device." The examiner further contends that, *id.*, "*Bronowicki et al.*, clearly show all the fundamental elements of the invention, i.e., regarding claims 1-2, a test specimen for stress or strain characterization, comprised of a material to be tested, such that the material having a uniform cross section geometry that is capable of generating a global deformation."

We agree with the examiner's position. To the extent of the scope of claims 1 and 2, *Bronowicki* does show a test specimen. We note that the nature of the test specimen is not recited in these claims. We also note that *Bronowicki* discloses the global deformation produced in the test specimen, See col. 3, lines 41-45 and col. 4, lines 11-16.

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Therefore we sustain the anticipation rejection of claims 1 and 2 by Bronowicki.

Rejection under 35 U.S.C. § 103

Claims 3 to 9 are rejected under this ground as being obvious over Bronowicki in view of Brull at pages 3 and 4 of the examiner's answer. The examiner asserts, *id.* at page 4, that "[i]t would have been obvious... to modify Bronowicki et al., by using teachings of Brull to provide for various superimposed geometry to trigger a nonuniform deformation for an intended desirable use. Because such geometries cause the material to be tested in a variety of shapes and effects for more accurate procedure." Appellants argue, brief at page 13, that "[n]either *Bronowicki et al.* nor *Brull* refer to the generation of a global deformation field by the geometry of the specimen, neither does *Bronowicki et al.* nor *Brull* refer to the material to be tested having a secondary superimpose [sic] geometry that produces nonuniform deformation. . . ." Regarding claim 3, the examiner responds, answer at page 6, that the

"other two independent claims 3 and 6, simply adding [sic] a secondary and a tertiary geometry. Such criterion for provision to enhance a non uniform

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deformation is well known as shown by the secondary reference to Brull. Although Brull may not show the exact geometries of the claimed invention, but [sic] any of such geometries is only an obvious modification of cited art."

We are persuaded by the examiner's position. We find that Brull discloses, for instance at col. 2, lines 58 through 60, that each of the coupons (specimens) includes a special notch pattern comprised of at least one pair of notches designed to produce a local stress concentration. Brull further goes on to say that the notch pattern of each of the coupons produces a stress field which varies in intensity from relatively mild to very severe. Brull is clearly involved with testing the specimens and studying the effect of notch pattern in the concentration of stresses and strains in the specimen. Therefore, we agree with the examiner that, in further analysis of the stresses and strains in the Bronowicki system, an artisan would have found it desirable to introduce stress concentrators in Bronowicki such as notch patterns as taught by Brull.

Appellants argue, brief at pages 14 and 15, that "[t]he examiner cannot apply hindsight so as to find a teaching or suggestion in the coted [sic] references to establish

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obviousness under 35 U.S.C. § 103(a)." We are not convinced by appellants' argument. As we stated above, both Bronowicki and Brull are directed to the testing of a specimen for stresses and strains and both are designed to obtain as much information regarding stresses and strain as the system would allow. In our view, an artisan involved with the testing of a specimen for stress and strain analysis would have found obvious to look to Brull to modify Bronowicki's system by supplying a notch pattern type of stress concentrators in the specimen. Therefore, we sustain the obviousness rejection of claims 3 to 9 over Bronowicki and Brull.

In conclusion, we have sustained the anticipation rejection of claims 1 and 2 and the obviousness rejection of claims 3 to 9. Accordingly, the decision of the examiner rejecting claims 1 to 2 under 35 U.S.C. § 102, and claims 3 to 9 under 35 U.S.C. § 103 is affirmed.

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

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AFFIRMED

LEE E. BARRETT )  
Administrative Patent Judge ) )  
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 ) BOARD OF PATENT  
PARSHOTAM S. LALL )  
Administrative Patent Judge ) APPEALS AND  
 )  
 ) INTERFERENCES  
 )  
STUART S. LEVY )  
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