The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOMOO HIROTA, YOSUKE MIYAZAKI
and MASAAKI TSUTSUBUCHI

Appeal No. 2006-1014
Application No. 10/255,081

ON BRIEF

Before GARRIS, PAK and TIMM, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal, which involves claims 1-4 and 7-9.[1]

We AFFIRM.

The invention relates to an impact energy-absorbing component in the passenger compartment of an automobile. (Specification, page 1, lines 5-6).

[1] The Examiner objected to claims 5-6 as being allowable except for their dependence upon a rejected base claim.

Further details regarding this subject matter are set forth in representative independent claim 1 which reads as follows:

> 1. A resin impact energy absorbing component comprising a high-rigidity brittle fracture portion and a low-rigidity ductile fracture portion.

The reference set forth below is relied upon by the Examiner as evidence of anticipation:

Suzuki et al. (Suzuki) 6,126,231 Oct. 3, 2000

All of the claims on appeal are rejected under 35 U.S.C. § 102(b) as being unpatentable over Suzuki.

Rather than reiterate the respective positions advocated by the Appellants and by the Examiner concerning this rejection, we refer to the brief filed May 26, 2005 and to the answer respectively for a complete exposition thereof.

OPINION

For the reasons provided below, the 35 U.S.C. § 102(b) rejection is sustained.

Appellants indicate that claims 1-4 and 7-9 stand together as one group. (Brief, page 5). Also, Appellants have not separately argued the claims in their brief. As such, we will focus on independent claim 1 (which is the broadest claim on appeal) as the representative claim on which to render our decision.

Appellants argue that Suzuki does not teach either a "high-rigidity brittle fracture portion" or a "low-rigidity ductile fracture portion" as required by claim 1. (Brief, page 7). In order to determine if Suzuki teaches these claim features, we must first determine the meaning and scope of the claim language. We look to the specification for any claim term definitions to be used in construing the claim. Phillips v. AWH Corporation, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005). We note that Appellants' specification defines the "high-rigidity" and "low- rigidity" claim phrases as follows:

> As used herein, "high-rigidity brittle fracture portion" can be defined as a component that has a large repulsive energy at unit deformation (load [N] versus deformation) and that undergoes fracture at small deformation, and "low-rigidity ductile fracture portion" can be defined as a component that has a small repulsive energy at unit deformation (load [N] versus deformation) and that undergoes fracture at high deformation. Specification, page 3, lines 9-17.

Our interpretation of Appellants' definition is that a "high- rigidity brittle fracture portion" requires a material that undergoes a "small" deformation when a force applied to the material is larger than the repulsive energy of the material, such that brittle fracture of the material occurs. Also, Appellants' "low-rigidity ductile fracture portion" phrase requires a material that undergoes large ductile deformation prior to fracture at an applied force. Moreover, Appellants' specification indicates that the material used to make these "high-rigidity brittle fracture portions" and the "low-rigidity ductile fracture portions" may be made of the same material and the rigidity of the respective portions, ". . . can be set by the thickness and shape of the material." (Specification, page 9, lines 2-5). So, we conclude that Appellants' claim requires two portions, which may be made of the same material, with one portion undergoing brittle fracture at small deformation ("high rigidity brittle fracture portion") and a second portion undergoing large, ductile deformation prior to fracture ("low-rigidity ductile fracture portion").

From the foregoing exposition of the claim language, we agree with the Examiner that Suzuki anticipates claim 1. As cited by the Examiner, we find that Suzuki in Figures 4 and 6

teaches an impact-absorbing component having a low-rigidity ductile fracture portion and a high-rigidity brittle fracture portion. (Answer, pages 4-5). Suzuki further explains what is shown in Figures 4 and 6 at column 12, lines 5-8, 19-22, 40-46, wherein Suzuki describes that the rigidities of various portions of the impact-absorbing component are manipulated. We find that Suzuki's teaching that the ribs undergo "buckling deformation" indicates the occurrence of ductile deformation. Also, we agree with the Examiner that Suzuki's teaching that some of the ribs are destroyed indicates the occurrence of brittle fracturing (Answer, page 4 and Suzuki, column 12, lines 20-22).

Appellants state that Suzuki teaches, with respect to the embodiment shown in Figure 4, that the holes or indentations 20A and 20B are supplied to both the front ribs (12) and edge ribs (13) to lower the rigidity of the ribs. (Brief, page 7). Appellants then conclude that, since both sets of ribs have the indentations, Suzuki contains no teaching that edge ribs (13) and front ribs (12) have differing rigidities. (Brief, page 7). However, Suzuki teaches as part of this embodiment that "some" of the ribs may have the hole or indentations 20A and 20B. (Column 12, lines 4-7). Since some of the ribs have the rigidity lowering indentations, by necessary implication, some

of the ribs will not have the indentations. Those ribs without the rigidity lowering indentations 20A or 20B will have a higher rigidity than those with the indentations. Thus, in this embodiment of Suzuki's Figure 4, we find that high and low rigidity portions satisfying Appellants' definitions are present in the impact-absorbing structure. Additionally, even if all the ribs have indentations 20A and 20B, the Suzuki disclosure, as a whole, reflects that the ribs have differing rigidities. Regarding the Figure 4 embodiment, Suzuki indicates at column 4, lines 31-37, that the embodiment is structured so that the lateral ribs (the middle portion of the impact-absorbing component) undergo bending deformation (i.e., ductile deformation) and absorb the impact energy more efficiently. This teaching necessarily implies that the lateral ribs have a lower-rigidity than other ribs in this embodiment because the lateral rib energy absorption is determined to be "more efficient" relative to the energy absorption of the other ribs.

In attempting to rebut the Examiner's finding that the honeycomb lattice for front rib section 12 shown in Figure 6 is at a higher rigidity due to its structure than the edge rib section 13, Appellants argue that both front ribs (12) and edge ribs (13) may have a honeycomb structure, so that there is no

indication that either the front ribs or the side ribs have a higher rigidity when compared to one another. (Brief, page 7). Appellants then argue that Suzuki does not disclose varying rigidity by varying the geometry of the ribs. (Brief, page 7). However, as the Examiner indicates in his answer, Suzuki clearly teaches that the geometry (i.e., spacing, density and thickness) of the ribs is manipulated to achieve the required rigidity. (Answer, page 5; Column 9, lines 44-60). So, even if the edge ribs 13 and front ribs 12 have the same honeycomb configuration, the spacing, density and thickness of the ribs would control their respective rigidities.

Appellants further argue that Suzuki does not teach arranging the low rigidity and high rigidity portions parallel to one another. We do not agree. Suzuki teaches that less rigid lateral ribs 15 are arranged parallel to the higher rigidity edge ribs 13. (Column 9, lines 44-56).

In addition to the aforementioned embodiments of Figures 4 and 6, other Suzuki embodiments support the Examiner’s anticipation determination. For example, Suzuki’s first embodiment, as shown in Figure 1b, is a monolithic resin-molded body. Suzuki’s impact-absorbing body by virtue of it being a monolithic (one-piece) body is, like the component disclosed by

Appellants, made of the same material throughout so that the high rigidity and low rigidity portions are made of the same material. (Column 8, line 66 to column 9, line 2). Moreover, Suzuki teaches that because a larger rigidity is required for the curved end portions 10B and 10C, the edge ribs 13 are arranged at a higher density than the lateral ribs 15 in this embodiment. (Column 9, lines 51-55). Suzuki's "larger rigidity" in the edge ribs 13 is relative to the center lateral ribs 15, which, comparatively, must be less rigid. Aside from changing the density of the ribs to increase rigidity, Suzuki (like Appellants) also teaches changing the thickness of the ribs to adjust rigidity. (Column 9, lines 57-64). These circumstances reveal that a high-rigidity portion (i.e., of relatively large rigidity) and low-rigidity portion (i.e., of relatively less rigidity) are formed in Suzuki's Figure 1 embodiment. Moreover Suzuki teaches in this embodiment that the ribs upon impact undergo buckling (i.e., ductile deformation) and further destruction (i.e., brittle fracturing). (Column 9, lines 62-64). These Suzuki teachings reinforce the Examiner's finding that Suzuki anticipates appealed claim 1.

Another relevant Suzuki embodiment is shown in Figure 5 which depicts a rib structure with cushioning material inserted

into the lattice structure formed by the ribs. (Column 12, lines 47-57). The cushioning material may be a soft, elastic rubber material. (Column 12, lines 54-55). Suzuki teaches that the cushioning material prevents a person from being exposed to the rib structure fragments (i.e., fractured pieces of the rib structure) upon impact. (Column 12, lines 62-64). The low-rigidity soft rubber portions correspond to ductile portions in the impact-absorbing component, whereas the high-rigidity rib portions correspond to brittle fracture portions in the impact-absorbing component. Therefore, Suzuki's Figure 5 embodiment provides additional support for a finding of anticipation.

Finally, Suzuki's Figure 13 embodiment also supports the Examiner's anticipation finding. In this embodiment, a rib structure having both a high rigidity portion and a low rigidity portion is formed. As in the figure 1 embodiment, the rigidity is controlled by changing the densities and the thicknesses of the ribs. (Column 19, lines 37-40 and 52-55). Upon impact, some of the ribs in the Figure 13 embodiment undergo buckling deformation (i.e. ductile deformation) and some undergo "further destruction" (i.e. brittle fracture). (Column 19, lines 56-58). Not only does Suzuki have the high-rigidity and low-rigidity portions, but as further evidence of anticipation, his impact-

absorbing component is structured the same as Appellants' component. Both Suzuki's and Appellants' components are structured so that the high-rigidity portions are made of the same material (i.e., Suzuki's component is a monolithic structure). (Column 18, lines 27-31). Therefore, Suzuki's impact-absorbing rib structure, being constructed the same as Appellants' structure and having high-rigidity and low-rigidity portions, anticipates Appellants' claimed invention.

In summary, we agree with the Examiner that Suzuki anticipates Appellants' claimed invention as demonstrated by Suzuki's embodiments shown in Figures 4 and 6. Additionally the Suzuki's embodiments in Figures 1B, 5 and 13 further support the Examiner's finding that Suzuki anticipates the appealed claims. We hereby sustain, therefore, the § 102 rejection of claims 1-4 and 7-9 as being anticipated by Suzuki.

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(iv)(effective Sept. 13, 2004).

AFFIRMED

BRADLEY R. GARRIS Administrative Patent Judge	)	
CHUNG K. PAK Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
CATHERINE TIMM Administrative Patent Judge	)	

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