

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* SAIJI MATSUOKA,  
KAZUHIRO HANAZAWA,  
TETSUO SHIMIZU  
and  
KEI SAKATA

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Appeal 2007-2207  
Application 10/181,810  
Technology Center 1700

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Decided: October 29, 2007

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Before EDWARD C. KIMLIN, CHUNG K. PAK, and  
LINDA M. GAUDETTE, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 3, 5, 13, 15, 27 and  
28. Claim 3 is illustrative:

3. A high-strength dual-phase cold rolled steel sheet having an excellent deep drawability, characterized in that the steel sheet has a composition comprising:

C: 0.01-0.032 mass%, Si: 0.01-1.0 mass%, Mn: about 1.43-2.02 mass%, P: 0.001-0.10 mass%, S: 0.0001-0.02 mass%, Al: 0.005-0.20 mass%, N: 0.0001-0.12 mass% and V: 0.01-0.5 mass% and further comprising not more than 0.3 mass% in total of one or two of Nb: more than 0 mass% but not more than 0.3 mass% and Ti: more than 0 mass% but not more than 0.3 mass%,

provided that V, Nb, Ti and C satisfy a relationship of  $0.55xC/12 \leq (V/51+2xNb/93+2xTi/48) \leq 3xC/12$ , and the remainder being Fe and inevitable impurities, and has a microstructure consisting of a ferrite phase as a primary phase and a secondary phase including martensite phase at an area ratio of not less than 1% to a whole of the microstructure,

wherein the steel sheet has a tensile strength of not less than 450 MPa and not more than 630 MPa and has an R-value of not less than 1.4.

The Examiner relies upon the following references as evidence of obviousness:

|                            |                |               |
|----------------------------|----------------|---------------|
| Matsuo (as translated)     | JP 55-158226   | Dec. 9, 1980  |
| Hashiguchi (as translated) | JP 57-067131 A | Apr. 23, 1982 |
| Suzuki                     | 6,410,163 B1   | June 25, 2002 |

Appellants' claimed invention is directed to dual-phase cold rolled steel wherein the primary phase is ferrite and the secondary phase of the steel is martensite.

Appealed claims 3, 5, 13, 14, 27 and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over JP '226 in view of JP '131 and Suzuki.

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we are in full agreement with the Examiner that

the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejection for the reasons set forth in the Answer, and we add the following primarily for emphasis.

There is no dispute that JP '226, like Appellants, discloses a high-strength dual-phase cold rolled steel sheet comprising ferrite and martensite phases and comprising amounts of carbon, silicon, manganese, aluminum, and nitrogen in amounts that either embrace or considerably overlap the claimed ranges for these elements. Also, as acknowledged by Appellants, the reference expressly teaches that the alloy may comprise other elements, such as V, for promoting the formation of the composite structure and improving the mechanical properties thereof (see page 12 of translation, last para.). In addition, JP '131 discloses that the claimed amounts for Nb, Ti and V can be included in a similar cold rolled sheet of steel to enhance its strength. Consequently, based on the collective teachings of JP '226 and JP '131, we fully concur with the Examiner that one of ordinary skill in the art would have found it obvious to formulate a sheet of cold rolled steel from alloys within the scope of the appealed claims. Notwithstanding Appellants' argument to the contrary, we are satisfied that the claimed invention, as a whole, would have been obvious to one of ordinary skill in the art when considering the prior art as a whole.

Appellants point out that neither Ti nor Nb is disclosed by JP '226, and it is apparent that neither V, Ti nor Nb are necessary in the steels of JP '226 to achieve a high r-value. However, while it certainly is the case that JP '226 provides no teaching that these elements are necessary in the disclosed alloys, the issue is whether one of ordinary skill in the art would

have found it obvious to incorporate such elements in the alloy composition in view of the expressed teaching of JP '131. In our view, the combined teachings of the prior art, as a whole, lead to an affirmative answer to the question.

Appellants make the argument that "according to the present invention, high strength and high r-value are achieved by establishing a ratio of V and Ti and/or Nb contents in relation to C contents [and] [t]here is no need to conduct complicated annealing processes as required by JP '226 and JP '131" (Br. 7, third para.). However, as properly explained by the Examiner, this argument is not germane to the subject matter presently on appeal. The claimed subject matter is not directed to a process for forming cold rolled steel, with or without particular annealing steps, but, rather, the appealed claims define the composition and properties of the steel sheet itself. It is Appellants' burden to demonstrate that steel sheets within the broad scope of the appealed claims are unexpectedly different from, and nonobvious over, the cold rolled steel sheets that one of ordinary skill in the art would have formulated from the combined teachings of the applied references. This Appellants have not done. We also note that the appealed claims encompass steel sheets formed by the annealing processes of JP '226 and JP '131.

As for separately argued claim 27, the claimed ranges for the amounts of C and Mn, 0.038 - 0.05 and 2.49 - 2.8, respectively, are totally embraced by the ranges disclosed by JP '226, namely, 0.005 - 0.15 and 1.6 - 3.0, respectively.

Regarding Appellants' arguments with respect to examples of JP '226 comprising certain elements outside the claimed ranges, it is well settled that

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the consideration of a reference is not limited to its examples or preferred embodiments but, rather, to the reference considered as a whole. As noted above, JP '226 discloses ranges for the claimed components which largely overlap the claimed ranges.

As a final point, we note that Appellants base no argument upon objective evidence of nonobviousness, such as unexpected results, which would serve to rebut the *prima facie* case of obviousness established by the Examiner.

In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner's decision rejecting the appealed claims is affirmed.

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

AFFIRMED

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