

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte MICHAEL R. WOOLERY and LEDELL RIGSBY

Appeal No. 1998-2312 Application No. 08/275,312

ON BRIEF

Before KIMLIN, LIEBERMAN, and JEFFREY T. SMITH, Administrative Patent Judges.
LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 14 through 17, which are all of the claims pending in this application.

THE INVENTION

The invention is directed to a process for the removal of vanadium metal values from ORIMULSION ash. The process comprises the removal of nickel and magnesium values from a slurry comprising the two metals and vanadium. The vanadium values are insolubilized as a result of the process and the solid phase. Additional limitations are disclosed in the following illustrative claim.

THE CLAIM

Claim 14 is illustrative of appellants' invention and is reproduced below:

14. A method of recovering vanadium values from ORIMULSION ~~slurry~~ ash containing vanadium, nickel and magnesium values which comprises the steps of slurrying the ash with water, then adding oxidizing agent and sulfuric acid to maintain the resulting slurry at a pH of between 2 and 3, thereafter agitating said slurry for 1-24 hours at temperatures between 20°C and 100°C, and then separating and removing the solid phase of undissolved ash and insoluble vanadium values from the liquid phase containing essentially all the nickel and magnesium values in solution.

THE REFERENCES OF RECORD

As evidence of obviousness, the examiner relies upon the following references:

Reinhardt et al. (Reinhardt)	4,100,251	Jul. 11, 1978
Sit	4,524,049	Jun. 18, 1985
Corigliano et al. (Corigliano)	4,788,044	Nov. 29, 1988
Valentine	5,122,353	Jun. 16,
1992		

THE REJECTIONS

Claims 14 through 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Corigliano in view of Valentine, Reinhardt, and Sit and the admitted prior art, page 3, last three lines through page 4, line 19.

OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner, and agree with the appellants that the rejection of claims 14 through 17 on the grounds of obviousness are not well founded. Accordingly, we reverse this rejection.

The Rejection under § 103

Our initial inquiry is directed to the scope of the claimed subject matter. During patent prosecution, claims are to be given their broadest reasonable interpretation consistent with the specification, and the claim language is to be read in view of the specification as it would be interpreted by one of ordinary skill in the

art. In re Morris, 127 F.3d 1048, 1053-54, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983); In re Okuzawa, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976).

Our construction of the subject matter defined by appellants' claim 14 is that the claimed subject matter is directed to a process of recovering vanadium from ORIMULSION. The essential process is described in the specification in its broadest terms as, "mixing natural bitumen ash with water to produce a slurry of 1-40% solids content, maintaining a 1-6.5 pH, agitating the slurry at 20-100°C and precipitating the vanadium as polyvanadate [sic, polyvanadate], and separating the solid phase from the liquid phase." See specification, page 3. The solid phase consists mainly of polyvanadate and contains virtually none of the nickel or magnesium content of the original ash. Id. In the slurry stage, "we oxidize the vanadium to pentavalent state preparatory to or coincident with heating the slurry to convert the vanadium to polyvanadate." See specification, page 2.

Applying these findings to the claimed subject matter, the process of claim 14 requires slurrying the ash containing nickel, magnesium, and vanadium with water and sulfuric acid resulting in the requisite pH. An oxidizing agent is thereafter added to the slurry containing the three metallic components. The process requires the solubilization of the magnesium and nickel, and the precipitation of the pentavalent vanadium such that on removal of the solid phase, the vanadium is separated as part of the solid phase from the nickel and magnesium which remain soluble in the slurry.

When we compare the process of the claimed subject matter with the prior art, we find that Corigliano discloses extracting vanadium together with other polyvalent cations. See column 1, lines 54-56. Stated otherwise, the leaching process of Corigliano extracts all the polyvalent cations. In contrast, the process of the claimed subject matter does not extract vanadium. Furthermore, only following the extraction of the cations is an oxidizing agent added to the extracted solution which thereafter oxidizes the vanadium and selectively precipitates it from solution. See column 1, line 59 - column 2, line 2, and column 2, lines 30-35 and 51-54.

Furthermore, the secondary references fail to provide any suggestion or teaching for oxidizing the vanadium prior to extraction. Valentine, directed to a different process is relied upon solely for its disclosure of the preparation of ORIMULSION. See column 3, lines 52-62. The admitted prior art likewise discloses the composition of ORIMULSION and a method for its preparation.

The reference to Reinhardt discloses the removal of vanadium from soot by leaching the soot with aqueous sulfuric acid to extract part of the metals present. Thereafter the soot is combusted and the leaching is repeated a second time with sulfuric acid. Both leaching processes extract vanadium and other metals contrary to the process of the claimed subject matter. See Abstract, column 1, lines 21-36, and claim 1.

The final reference to Sit discloses slurrying the feed ash in water followed by treatment with sulfuric acid, either formed in situ or added to the slurry. See column 3, lines 47-61. An extract of vanadium and nickel is obtained and removed from the suspended solids. See column 3, lines 55-58. The extract is thereafter sequentially precipitated to recover the metals. See Example 1 and claim 1.

Based upon the above considerations, even if the examiner was correct in combining Corigliano, Valentine, Reinhardt, and Sit in the manner described in the Answer, pages 3 to 5, the inclusion of vanadium in the extraction process is required by each of the references of record and hence the process created would, in any event, fall short of the invention defined by the claimed subject matter, as the aforesaid claimed subject matter requires features that cannot be achieved by combining the three references. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988). Accordingly, the examiner has not established a prima

file case of obviousness.

DECISION

The rejection of claims 14 through 17 under 35 U.S.C. § 103 as being unpatentable over Corigliano in view of Valentine, Reinhardt, and Sit is reversed.
The decision of the examiner is reversed.

REVERSED

EDWARD C. KIL
MLIN)
Administrative Patent Judge)

PAUL LIEBERMAN

) APPEALS
Administrative Patent Judge)

JEFFREY T. SMITH)
Administrative Patent Judge)

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