Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

---

Ex parte
GEORGE R. WINTER
and ZVI MERCHAV

---

Appeal No. 98-3017
Application No. 08/437,986

**ON BRIEF**

---

Before PAK, OWENS and LIEBERMAN, 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 7 through 12, which are all of the claims pending in this application.

## THE INVENTION

The invention is directed to a method of producing a xylene isomer comprising treating a feed stream containing a mixture of xylene isomers and ethyl benzene with an isomerization cracking catalyst which converts the ethylbenzene to benzene. Thereafter, benzene and a specific xylene are sequentially removed. The remaining feed stream is treated with a second isomerization/cracking catalyst and recycled. Additional features of the claimed subject matter are set forth in the following illustrative claim.

## THE CLAIM

Claim 7 is illustrative of appellants' invention and is reproduced below.

1. A method for producing at least one xylene isomer product from a feed stream comprising at least ortho-xylene, meta-xylene, ethylbenzene and para-xylene, the method comprising the steps of:

starting with a feed stream comprising at least para-xylene, meta-xylene, ortho-xylene and ethylbenzene;

feeding the feed stream into a pretreatment unit having an isomerization/cracking catalyst therein in an amount sufficient to cause an approximately 90% conversion of ethylbenzene to benzene and removing the converted benzene from the stream;

passing the stream of xylenes to an xylene isomer specific separator;

removing the desired isomer from the stream;

passing the stream through an isomerization unit having an isomerization/cracking catalyst therein;

creating a stream having an equilibrium amount of xylene isomers in the xylene isomerization unit; and

passing the stream back into the xylene isomer specific separator for processing.

## THE REFERENCES OF RECORD

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

| | | |
|---|---|---|
| Burress | 3,856,873 | Dec. 24, 1974 |
| Parker | GB 2 052 554 A | Jan. 28, 1981 |

(Published United Kingdom Patent Application)

## THE REJECTIONS [1]

Claims 7 through 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burress in view of Parker.

Claims 12 stands rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

## 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 7 through 12 on the grounds of obviousness is not well founded. Accordingly, we reverse this rejection.

---

[1]The examiner has withdrawn rejections of claim 12 under 35 U.S.C.§ 112, first paragraph for lack of enablement, and claims 7 through 12 under 35 U.S.C. § 112, second paragraph for indefiniteness. See Answer, pages 5 and 6 respectively.

We do not reach the rejection under section 112, first paragraph for the reasons stated infra, and we enter a new rejection in accordance with 37 CFR § 1.196(b).

**The Rejection over the Burress in view of Parker**

Burress discloses a process for the isomerization of xylene together with the conversion of ethyl benzene content. See column 4, lines 55-58. The process utilizes a mixture of a $C_8$ aromatic hydrocarbon feed. See column 5, line 30. As an initial step, the feed passes to distillation in an ethyl benzene tower **2,** from which a portion of the ethyl benzene content is taken overhead by line **3**. It is impracticably expensive to attempt removal of substantially all of the ethyl benzene by tower. See column 5, lines 34-38.

In contrast Parker discloses hydrocarbon conversion of ethyl benzene in a mixed xylene-ethyl benzene feedstock by contacting the feedstock with a zeolite catalyst which results in ethyl benzene destruction. Preferably the ethyl benzene is cracked to form ethylene and benzene. See Abstract, page 1, lines 3-7, and page 2, lines 35-36.

The examiner argues that Appellants' pretreatment step corresponds to the cracking step of Parker when applied to a feedstock of $C_8$ aromatics. See Answer, page 5. Accordingly, the examiner concludes that, "[i]t would have been obvious to one of ordinary skill in the art to apply the teaching of Parker to the disclosure of Burress with a reasonable expectation of obtaining a highly-useful method of purifying a xylene isomer

from a mixed xylenes/ethylbenzene feedstream since Burress also requires such a feedstock in the production of a purified p-xylene stream." See Answer, page 5.

Assuming arguendo that the combination of Burress with Parker is sufficient to meet the limitations of the claimed subject matter before us, the issue remains whether there is sufficient motivation to combine the disclosures of Burress and Parker in the manner suggested by the examiner. It is the examiner's position with respect to the two references that, "[t]he motivation to combine would have come from the cost savings of not having to use such a fractionating tower, a fact realized by Burgess." See Answer, page 10. We disagree.

The basic assumption of the examiner is that replacement of an ethyl benzene distillation tower with the isomerization/cracking process of Parker results in cost savings. There is no evidence however, to support that position. Although the distillation of ethyl benzene in a tower is expensive, as acknowledged by Burress, it is not evident that the replacement of a distillation tower by a cracking process utilizing an isomerizing/cracking apparatus would result in an economic advantage and a cost saving as argued by the examiner.

The examiner must show reasons that the skilled artisan with no knowledge of the

claimed invention would select the elements from the cited prior art references for combination in the manner claimed. We determine that there is no reason, suggestion, or motivation to combine the references in the manner proposed by the examiner. Accordingly, the examiner has not established a prima facie case of obviousness and the examiner's rejection of claims 1 through 12 under 35 U.S.C. § 103 is not sustained. In re Rouffet, 149 F.3d 1350, 1355, 47 USPQ2d 1453, 1455 (Fed. Cir. 1998).

**The rejection under section 112, first paragraph**

It is the examiner's position that the phrase "substantially complete conversion of non-aromatic compounds to hydrocarbons lighter than ethylbenzene within the pretreatment unit," is not supported in the specification. The most pertinent portion of the specification, page 10, lines 6-7 states that, "hydrocracking of the non-aromatics to light compounds occurs so that they can easily be removed from the xylenes." Original claim 12 contains the phrase "causing a high level of non-aromatic compounds to lighter hydrocarbons within the pretreatment unit and removing the lighter hydrocarbons from the stream." The record before us however is otherwise silent with respect to the meaning of the original term "high level" and the newly inserted term, "substantially complete." Accordingly, we do not reach the Section 112 issue as it is not sufficiently clear based on the record before us whether "substantially complete" is different from the term "high level."

**Rejection Pursuant to 37 CFR § 1.196(b)**

Under the provisions of 37 § CFR 1.196(b), we enter the following new ground of rejection. Claim 12 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellants regards as the invention.

"The legal standard for definiteness [under the second paragraph of 35 U.S.C. § 112] is whether a claim reasonably apprises those of ordinary skill in the art of its scope." In re Warmerdam, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). The inquiry is to determine whether the claim sets out and circumscribes a particular area with a reasonable degree of precision and particularity. The definiteness of the language employed in a claim must be analyzed not in a vacuum, but in light of the teachings of the particular application. In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

We determine that the scope of the claimed subject matter cannot be ascertained in light of the teachings in the specification. The term "substantially complete" is a relative term and the scope of the term can ordinarily only be understood in light of the specification. The specification, however, does not explicitly contain the term "substantially complete." As we stated supra, the only possible relevant terminology appearing in the specification is directed to another relative term "high level." This

term, however, sheds no light on the scope of "substantially incomplete." Furthermore, the only other relevant disclosure in the specification, page 10, lines 6 and 7, is directed to hydrocracking of non-aromatics as opposed to the scope of hydrocracking that occurs. On this record, we conclude that the specification fails to provide a reasonable standard for understanding the metes and bounds of the claimed subject matter, when the claims are read in light of the specification. See ***Seattle Box Co. v. Industrial Crating & Packing, Inc***, 731 F.2d 818, 826, 221 USPQ 568, 573-574 (Fed. Cir. 1983). When a word of degree is used it must be determined "whether the patent's specification provides some standard for measuring that degree."

## DECISION

We have reversed the rejection of claims 7 through 12 under 35 U.S.C. § 103(a) as being unpatentable over Burress in view of Parker. Under the provisions of 37 CFR § 1.196(b) a new ground of rejection of claim 12 has been entered.

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellants, WITHIN TWO MONTHS

FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claims:

> (1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .
>
> (2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

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

***REVERSED, 37 CFR § 1.196(b)***

CHUNG K. PAK )
Administrative Patent Judge )
)
)
)
)

) BOARD OF PATENT
TERRY J. OWENS ) APPEALS
Administrative Patent Judge ) AND
) INTERFERENCES
)
)
)
)
PAUL LIEBERMAN )
Administrative Patent Judge
)

lp

KAJANE MCMANUS
P. O. BOX 344
WONDER LAKE, IL 60097