726 F.2d 724
United States Court of Appeals,
Federal Circuit.

STUDIENGESELLSCHAFT
KOHLE, M.B.H., Appellee,
v.
DART INDUSTRIES, INC., Appellant.

No. 83–591.
|
Jan. 19, 1984.

Synopsis

Patent infringement action was brought. The United States District Court for the District of Delaware, 549 F.Supp. 716, Caleb M. Wright, Senior District Judge, held that the patent was valid and was infringed, and appeal was taken. The Court of Appeals, Rich, Circuit Judge, held that: (1) trial court's finding that patent for catalysts used in polymerization of ethylene and other lower olefins, including propylene, was not anticipated was not clearly erroneous; (2) sufficient evidence of commercial success attributable to patented catalysts supported their nonobviousness; (3) patentee's failure to cite prior German patent to Patent Office examiner did not establish fraud; (4) fact that another individual was the first actually to polymerize propylene with the claimed catalysts was immaterial to infringement question; (5) patent was valid and was infringed; and (6) patentee's silence during five-year absence of negotiations did not give rise to an estoppel.

Affirmed and remanded.

West Headnotes (12)

[1] Patents
Number of Prior Art References; Combinations

Anticipation of a patent must be found in a single reference, device or process.

30 Cases that cite this headnote

[2] Patents
Number of Prior Art References; Combinations

Trial court in patent infringement action was correct in refusing to combine teachings of several references to build an anticipation.

25 Cases that cite this headnote

[3] Patents
Novelty; anticipation

Trial court's finding that patent covering catalysts used in polymerization of ethylene and other lower olefins, including propylene, was not anticipated was not clearly erroneous.

[4] Patents
Chemicals

Evidence of commercial success attributable to patented catalysts used in polymerization of ethylene and other lower olefins, including propylene, and evidence of their solution of unmet needs supported trial court's finding of their nonobviousness.

1 Cases that cite this headnote

[5] Patents
Scope of inquiry and power of court in general

Very limited attention which trial court in patent infringement action gave to claim that patentee was guilty of fraud in its failure to cite prior German patent to Patent Office examiner did not constitute a legally insufficient finding on the issue, given fact that there was no testimony on the subject at trial and it was first developed in infringer's posttrial briefs.

1 Cases that cite this headnote

[6] Patents
Particular fields of invention

Considering that there was no live testimony, that documentary evidence was conflicting, and that trial court determined that prior German patent had no effect on validity, and therefore

none on patentability, and that facts supporting legal conclusion of fraud must be shown by clear and convincing evidence, trial court's finding that there was no fraud in patentee's failure to cite prior German patent to Patent Office examiner was correct.

1 Cases that cite this headnote

[7] Patents
Scope of inquiry and power of court in general

With regard to infringer's contention that patent covering catalysts used in polymerization of ethylene and other lower olefins, including propylene, was invalid because another individual was first actually to polymerize propylene with the claimed catalysts, since claims found to have been infringed were for catalysts, not for polymerization processes, it was immaterial who was the first to use such catalysts to polymerize proplyene.

[8] Patents
Chemicals

"Reverse doctrine of equivalents" did not apply to action for infringement of patented catalysts used in polymerization of ethylene and other lower olefins, including propylene, since infringer's catalysts were not so dissimilar to those contemplated by patentee and his coinventors that it was inequitable to regard former as being within scope of the claims; moreover, fact that infringer's catalysts might be superior to those actually invented, disclosed and contemplated by patentee did not by itself remove infringer's catalysts from scope of claimed infringement.

11 Cases that cite this headnote

[9] Patents
Chemicals

Patent No. 3,113,115 covering catalysts used in polymerization of ethylene and other lower olefins, including propylene, was valid, enforceable, and infringed.

[10] Estoppel
Silence

More than simple silence must be shown to support an estoppel.

4 Cases that cite this headnote

[11] Patents
Estoppel

Defense of estoppel to patent infringement action was not established where infringer showed nothing more than silence on part of patentee during five-year period during which there were no negotiations.

10 Cases that cite this headnote

[12] Patents
In general; utility

US Patent 3,113,115. Cited.

1 Cases that cite this headnote

Attorneys and Law Firms

***725** Thomas F. Reddy, Jr., New York City, argued for appellant. With him on the brief were Gerald J. Flintoft, Stanton T. Lawrence, III, Brian M. Poissant and Arthur G. Connolly, Jr., New York City.

***726** Arnold Sprung, New York City, argued for appellee. With him on the brief was Nathaniel Kramer, New York City.

Before MARKEY, Chief Judge, and RICH and DAVIS, Circuit Judges.

Opinion

RICH, Circuit Judge.

This appeal is from the interlocutory judgment of the United States District Court for the District of Delaware (Wright, J.), holding U.S. patent No. 3,113,115 to Ziegler et al. (Ziegler patent) valid, enforceable, and infringed by appellant Dart Industries, Inc.'s catalytic production of commercial grade polypropylene and ordering an accounting. 549 F.Supp. 716,

216 USPQ 381 (D.Del.1982). We affirm and remand for an accounting.

The technical facts concerning the claimed catalysts and Dart's allegedly infringing process, as well as other matters essential to understanding this case, have been painstakingly set forth in the extensive opinion of the trial court, familiarity with which is assumed, and will be repeated herein only as strictly necessary. The unusually thorough and meticulously detailed opinion of Judge Wright with 157 footnote references and explanations manifests a comprehensive grasp of the facts and the applicable law so that we deem it sufficient to treat summarily the issues argued on this appeal. It suffices here by way of introduction to the case, to say that it involves the oft-litigated but now expired Ziegler patent for catalysts used in the polymerization of ethylene and other lower olefins, which includes propylene. The involved claims are very broad, and define with varying specificity catalysts made of an alkyl aluminum compound and a heavy metal salt, oxide, or hydroxide. * Attention in this case has focused on a preferred catalyst made of an alkyl aluminum halide and a titanium halide.

Dart uses in its process a catalyst made of diethyl aluminum monochloride (DEAC) and titanium trichloride.

At trial, Dart asserted that the invention claimed in the Ziegler patent was anticipated under 35 U.S.C. § 102 by that described in German patent No. 874,215 to Fischer (Fischer patent). Dart also asserted that the claimed catalysts would have been obvious under 35 U.S.C. § 103 from the Fischer patent and two articles written jointly by Hall and Nash. It further asserted that the Ziegler patent had been obtained by fraud and for that reason was unenforceable. Dart also denied infringement, either literal or under the doctrine of equivalents, and maintained that appellee, Studiengesellschaft Kohle m.b.H. (herein SGK), Ziegler's successor in interest, should be barred from maintaining suit under the equitable principles of laches and estoppel. These same grounds of invalidity or unenforceability have been reargued before us. We shall take them up in order.

I. *Validity*

A. *Anticipation*

Dart argues, contrary to well-established law, that the trial court made an error of law in holding that anticipation must be found within a single reference. It points out that other references may be used to interpret that reference and to reveal what it would have meant to one of ordinary skill at the time the invention was made. Specifically, Dart contends that Fischer, "taken with the clear and directly applicable disclosure of the Hall and Nash publications demonstrating the extent of knowledge of one skilled in the art ... does clearly and unambiguously *indicate* that a mixture of diethyl and monoethyl aluminum chlorides is formed under the Fischer reaction conditions." (Emphasis in original.)

[1] **[2]** The district court correctly stated the law regarding anticipation. It is hornbook law that anticipation must be found in ***727** a single reference, device, or process. Dart's reliance on the caveat to that rule permitting the use of additional references to interpret the allegedly anticipating reference is misplaced. The trial court was not only aware of this caveat, but also applied it in a thorough and convincing manner. Dart relies on the Hall and Nash articles for a very specific teaching, not for any light they shed on what Fischer would have meant to those skilled in the art in his day. What Dart asked the trial court to do, and what it would have us do on appeal, is to combine the teachings of the references to build an anticipation. That would be contrary to settled law, and the trial court was correct in refusing to do so.

[3] Apart from this argument, Dart also relies upon the testimony of its expert, and accuses the trial court of having relied only on "certain limited, isolated, out of context and misleading testimony" to support its conclusion. It does not matter, however, that Dart on appeal may be able to reconstruct its proofs to show that another factual conclusion could have been reached. Dart must show that the conclusion which was reached was clearly erroneous. It has not done so. Our review of the testimony as cited by the trial court and the parties leads us to the conclusion that the trial court's findings on anticipation were not in error, and they are affirmed.

B. *Obviousness*

[4] Dart's position on obviousness is that "From the teachings of the Fischer and the Hall and Nash publications it would have been obvious in 1953 to polymerize ethylene to a solid polymer using a mixture of titanium tetrachloride and ethyl aluminum sesquichloride as the catalyst." It accuses the trial court of magnifying inconsequential differences in reaction conditions and products between Fischer and Hall and Nash. It relies on Ziegler's own statements in which he characterized Fischer's process as a forerunner of his invention. It also relies on an alleged nearly simultaneous invention by others at DuPont, including a Dr. Anderson, and ascribes to the trial court errors in its assessment of the level

of skill of those others, their number, and the intensity of their efforts. It attempts to discredit the commercial success and solution of unmet needs attributed to the invention of the Ziegler patent by raising the possibility that some of both may be attributable to other Ziegler catalysts and processes.

The trial court's analysis more than meets most of these contentions, and withstands all of them. We agree with the trial court that the Ziegler patent catalyst would not have been obvious. The evidence clearly shows that the cause of the catalysts in Fischer was a mystery to his contemporaries who were skilled in the art. Absent hindsight, there is no indication that Hall and Nash's work in synthesizing lubricating oils could have provided or in fact did provide a key to unlock that mystery. We agree with the trial court that Ziegler's statements on Fischer were a product of hindsight. While there may have been no basis in the record for the trial court's assumption that Dr. Anderson was a man of more than ordinary skill, Dart's evidence of nearly simultaneous solution by others is simply not persuasive under the circumstances. Even if some of the commercial success and satisfaction of unmet needs is attributable to other Ziegler inventions, the record nonetheless contains sufficient evidence of commercial success attributable to the Ziegler patent catalysts involved herein to support their nonobviousness. The trial court's conclusion to that effect is therefore affirmed.

C. *Fraud*

[5] Dart also argues that the trial court rendered a legally insufficient finding on fraud. The trial court said: "The court finds no fraud in SGK's failure to cite Fischer to the Patent Office Examiner. Dart's argument to this effect is rejected." In a footnote, the trial court explained its terseness when it noted that "although mentioned in the pre-trial stipulation ... there was no testimony on this subject at trial and that it was first developed in the defendant's post-trial briefs." Thus, the ***728** brevity of the trial court's comments on fraud were in keeping with its statement at the outset of its opinion, where it noted that "the sheer magnitude of the evidence presented precludes addressing each issue raised." The trial court can hardly be faulted when, in the course of preparing an opinion which occupies forty-four pages of the Federal Supplement, it felt justified in giving very limited attention to an issue which, in Dart's estimation, did not require any testimony.

[6] A problem potentially occasioned by the brevity of the trial court's comments is that the lack of explicit factual findings may have jeopardized this court's ability to review this issue on appeal. In this case, however, the problem does not arise. The bases of the trial court's holding on fraud are perfectly apparent from other portions of the opinion. Bearing in mind that there was no live testimony, that the documentary evidence was conflicting, that the trial court had just determined that Fischer had no effect on validity, and therefore none on patentability, and that facts supporting the legal conclusion of fraud must be shown by clear and convincing evidence, we agree with the trial court that Dart's assertions of fraud are without merit.

D. *The Natta Use*

[7] Preliminarily to challenging the trial court's findings on infringement, Dart asserts that if Ziegler's claims here in suit are "construed to cover propylene polymerization," as they have been, then they are invalid because another individual named Natta was the first actually to polymerize propylene with the claimed catalysts. Thus, it is argued, Ziegler's claims are either invalid, or not infringed by Dart's process of polymerizing propylene, because they should be more narrowly construed. We note, however, that claims 1 and 4, the claims found to have been infringed, are for *catalysts, not* for polymerization processes. It was Ziegler and his named coinventors who invented those catalysts and told Natta about them. It is here immaterial who was the first to *use* those catalysts to polymerize propylene. After full and careful consideration of Dart's arguments based on the work of Natta, we find them to be without merit.

II. *Infringement*

[8] We agree completely with the trial court's analysis and findings on literal infringement. Dart's catalyst is indisputably within the literal terms of claims 1 and 4. The so-called "reverse doctrine of equivalents" does not apply in this case because Dart's catalyst is not so dissimilar to those contemplated by Ziegler and his coinventors that it would be inequitable to regard the former as being within the scope of the claims. That Dart's catalysts may be superior to those actually invented, disclosed, and contemplated by Ziegler et al. would not by itself remove Dart's catalysts from the scope of claims 1 and 4.

[9] Since we uphold the trial court's findings on literal infringement, it is unnecessary and therefore inappropriate to comment upon findings relating to infringement under the doctrine of equivalents.

III. *Laches and Estoppel*

Finally, Dart contends that Ziegler or SGK should have known that Dart was infringing the Ziegler patent when it refused a license. It also assigns error to the trial court's having deemed any delay in bringing suit to have ceased when Ziegler sued another infringer. Dart maintains that it was unreasonable for the trial court to have required Dart to show that it would *not* have expanded its polypropylene manufacturing facilities had Ziegler timely asserted his patent. Dart also asserts that a five-year absence of negotiations or threats from SGK gave rise to an estoppel by silence.

[10] **[11]** Dart has not persuaded this court of any clear error in the trial court's findings on laches or estoppel, or that the denial of these equitable defenses in light of these findings was an abuse of discretion. All this court has been convinced of is that the history of business relations between ***729** Ziegler and SGK on the one hand and Dart on the other is complicated and subject to varying interpretation, with SGK maintaining that polypropylene could not be produced without Ziegler's patented catalysts, and Dart maintaining that it was doing just that. Under all of the circumstances, the finding of a delay less than six years was not clearly erroneous. SGK's silence certainly did not give rise to an estoppel in this case. As the trial court pointed out, something more than simple silence must be shown to support an estoppel, yet Dart showed nothing more. The trial court's holdings that Dart's defenses of laches and estoppel lack merit are affirmed.

Conclusion

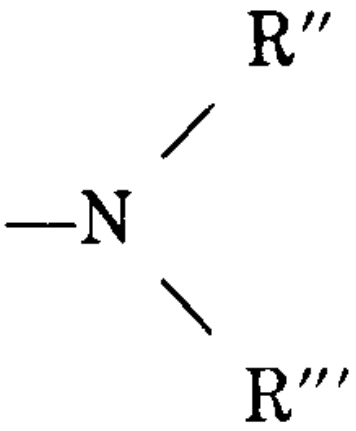
Finding, as we do, failure by appellant to show reversible error on any of the issues appealed, the interlocutory judgment of the trial court is affirmed, and this case is remanded to the trial court for an accounting and such other proceedings as that court may deem proper.

AFFIRMED AND REMANDED.

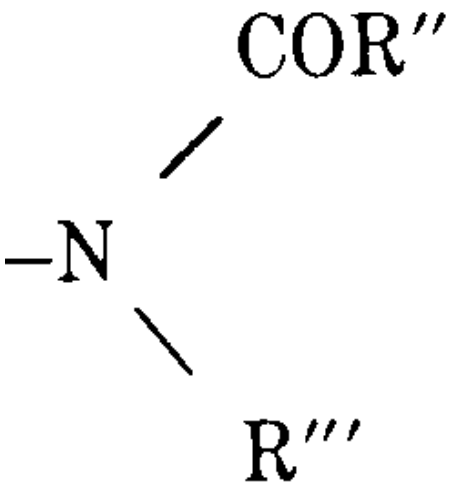
APPENDIX

Claims of the '115 Patent Asserted Against Dart

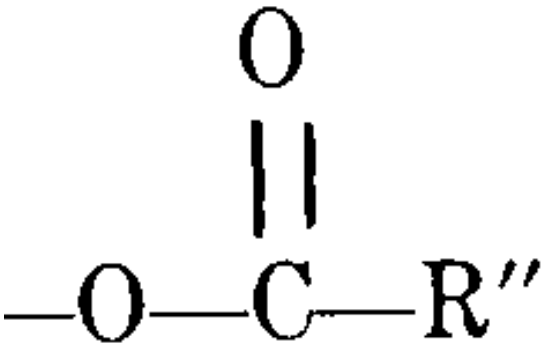
1. Polymerization catalyst essentially consisting of an aluminum compound having the general formula RR′A1X, in which R is a member selected from the group consisting of hydrogen, alkyl radicals and aryl radicals, R′ is a member selected from the group consisting of hydrogen, alkyl radicals and aryl radicals, and in which X is a member selected from the group consisting of hydrogen, halogen atoms, alkoxy radicals, aryloxy radicals, secondary amino radicals of the formula



in which R″‘ and R″‘′ are hydrocarbon radicals, secondary acid amide radicals of the formula

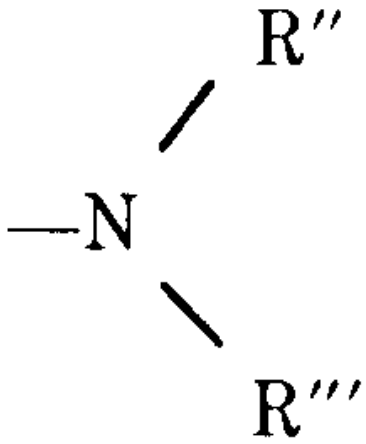


in which R″‘ and R″‘′ are as given above, mercapto radicals, and radicals of carboxylic acids of the formula

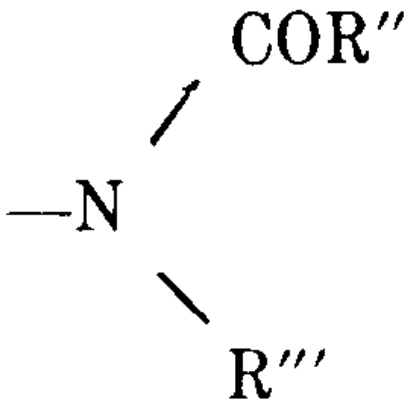


in which R″‘ is as given above, with a heavy metal compound selected from the group consisting of salts, freshly precipitated oxides and hydroxides of metals of groups IV–B, V–B, and VI–B of the periodic system, including thorium and uranium, metals of group VIII of the periodic system and manganese.

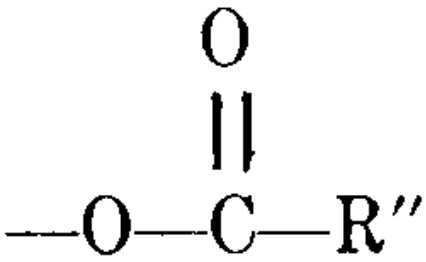
2. Polymerization catalyst, essentially consisting of the product formed by mixing an aluminum compound having the general formula RR′A1X, in which R is a member selected from the group consisting of hydrogen and alkyl radicals and aryl radicals, R′ is a member selected from the group consisting of hydrogen, alkyl radicals and aryl radicals, and in which X is a member selected from the group consisting of hydrogen, halogen atoms, alkoxy radicals, aryloxy radicals, secondary amino radicals of the formula



in which R″‘ and R″‘′ are hydrocarbon radicals, secondary acid amide radicals of the formula



in which R″‘ and R″‘′ are as given above, mercapto radicals, and radicals of carboxylic acids of the formula



***730** in which R′ is as given above, with a heavy metal compound selected from the group consisting of salts and the freshly precipitated oxides and hydroxides of metals of groups IV–B, V–B, and VI–B of the periodic system, including thorium and uranium, metals of group VIII of the periodic system and manganese, in an inert organic solvent with at least one of said aluminum compounds and said heavy metal compounds in solution in said solvent.

3. Catalyst according to claim 1, in which said aluminum compound is a dihydrocarbon aluminum halide.

4. Catalyst according to claim 1 in which said aluminum compound is a dialkyl aluminum monohalide and in which said heavy metal compound is a compound of a metal from group IV–B of the periodic system.

3

9. Catalyst according to claim 1 in which said heavy metal compound is a compound of a metal from group IV–B of the periodic system.

3

15. Catalyst according to claim 2 in which said aluminum compound is a dihydrocarbon monohalide and in which said heavy metal compound is a heavy metal salt.

All Citations

726 F.2d 724, 220 U.S.P.Q. 841

Footnotes

* The claims in suit are annexed to this opinion as an Appendix. The claim principally asserted below was claim 4 in which the aluminum compound is defined as a dialkyl aluminum monohalide and the heavy metal is a metal from group IV–B of the periodic system, which group consists of titanium, zirconium, and hafnium. Titanium is the metal involved here.