Diamond v. Chakrabarty, 447 U.S. 303 (1980)

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Summary

On 17 March 1980, the United States Supreme Court (hereinafter "the Court") confirmed the decision of the Court of Customs and Patent Appeals to grant a patent for a bacterium capable of breaking down crude oil (*Pseudomonas putida*). The Supreme Court therewith established that whether or not an invention is a living thing is irrelevant to the question of its patentability.

The facts

Ananda Mohan Chakrabarty, a genetic engineer working for General Electric had developed a bacterium, today known as *Pseudomonas putida* (derived from the *Pseudomonas genus*), that is capable of metabolizing the hydrocarbons that constitute crude oil. No naturally occurring bacteria shows this property, and it is used in the field of bioremediation or biodegradation of oil.

In 1972, Chakrabarty filed a patent application assigned to General Electric Co.. Chakrabarty's 36 patent claims were of three types: (1) process claims for the method of producing the bacteria; (2) claims for an inoculum comprised of a carrier material floating on water and the new bacteria; and (3) claims to the bacteria themselves. The patent examiner allowed the claims falling into the first two categories, but rejected those belonging to the third based on two grounds: first, that micro- organisms are a "product of nature" and second, that as living things they are not patentable subject-matter under § 101 of Title 35 U.S.C..

This provision states that:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

Following Chakrabarty's appeal to the Patent Office Board of Appeals, the Board affirmed the examiner on the second ground.

The Court of Customs and Patent Appeals then reversed the decision on the authority of its prior decision in In re Bergy, 563 F.2d 1031,1038 (1977), holding that "the fact that microorganisms…are alive…(is) without legal significance" in patent law.".

The Supreme Court agreed and held on 16 June 1980 that a live, human- made micro-organism is patentable subject-matter under §101 and that the respondent's micro-organism constitutes a "manufacture" or "composition of matter" within that statute (pp. 447 U.S. 308-318). The patent was granted on 31 March 1981.

The legal issues

The Court had to determine whether Chakrabarty's living micro-organism constitutes a "manufacture" or "composition of matter" within the meaning of the statute.

The terms "manufacture" and "composition of matter", especially in combination with the comprehensive "any" in Section 101 are both interpreted to aim at a large scope of patent laws. "Manufacture" is taken to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand- labor or by machinery" (American Fruit Growers, Inc. v. Brodgex Co., 283 U.S. 1,11 (1931)). "Composition of matter": is taken to include "all compositions of two or more substances and… all composite articles, whether they be the results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids." (Shell Development Co. v. Watson, 149 F Supp. 279, 280 (DC 1957)).

Following these large definitions, in the view of the Court the respondent's micro-organism qualifies as patentable subject- matter since it is not a hitherto unknown natural phenomenon but a non-naturally occurring manufacture or composition of matter and thus a product of human ingenuity. The Court in this context distinguished another case (i.e. *Funk Brothers Seed Co. v. Kalo Inoculant Co*) where the subject-matter at hand was a naturally occurring phenomenon.[1]

The Court rejected two lines of contrary arguments that were advanced:[2]

- The enactment of the 1930 Plant Patent Act which afforded patent protection to certain asexually reproduced plants; and the 1970 Plant Variety Protection Act, which authorized protection for certain asexually reproduced plants but excluded bacteria from its protection.
  This argument was rebutted with the clarification that the relevant distinction in the Plant Patent Act was not between living and inanimate things, but between products of nature, whether living or not and human- made inventions. Furthermore, under the Plant Variety Protection Act, true-to-type reproduction was possible and in that respect plant patent protection was therefore appropriate. There is no reason to read an exclusion of bacteria in §101 either.
- The fact that genetic technology was unforeseen when Congress enacted §101 and that Congress must therefore expressly authorize protection of such before it can be granted.
  This argument was rebutted with reference to the established methods of interpretation with which the existing law can be applied to new matters; namely guidance by the legislative history and statutory purpose.

Points of significance

- Whether a thing is alive or not is irrelevant to patent law. Significant is alone whether it is a product of nature or of human invention.

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[1] Section III of the decision.
[2] Section IV of the decision.

- The Court in subsequent case law confirmed the non-patentability of natural substances such as isolated DNA (*Myriad* case) and natural phenomena (*Mayo* case).[3]
- The criteria of "manufacture" and "composition of matter" in the US provision on patentable subject matter are interpreted to have a very large scope.

Key words
Patent, micro-organism, U.S. Supreme Court, Title 35 U.S.C. § 101, patentable subject matter, patentability, invention, novelty, new forms, substances existing in nature, manufacture, composition of matter, natural phenomenon, human ingenuity.

Available at: http://supreme.justia.com/cases/federal/us/447/303/case.html

[3] See the summaries in this database.