

MERRILL v. YEOMANS ET AL.

[1 Ban. & A. 47; Holmes, 331; 5 O. G. 268.]¹

Circuit Court, D. Massachusetts. Feb. 13, 1874.²

PATENTS—CLAIM—PRODUCT—PROCESS—HYDROCARBON OIL.

1. A patentee may claim broadly a new product however made, or he may claim the new product, when made by a described process, or he may claim the process, but he cannot embrace both the process and the product in the same claim.

[Cited in *Milligan & Higgins Glue Co. v. Upton*, Case No. 9,607; *Durand v. Schulze*, 10 C. C. A. 819, 61 Fed. 821.]

2. A claim for “the above described new manufacture of deodorized heavy hydrocarbon oils, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils and having a slight smell like fatty oil, from heavy hydrocarbon oils, by treating them substantially as hereinafter described,” is a claim for a heavy hydrocarbon oil, having the characteristics described in the patent, and produced by treating the oils in the manner described in the patent, and is not infringed by a similar oil produced by a different process.

[Cited in *Badische Anilin & Soda Fabrik v. Hamilton Manuf'g Co.*, Case No. 721; *Cone v. Morgan Envelope Co.*, Id. 3,096.]

3. A patent for a deodorized heavy hydrocarbon oil, made from heavy hydrocarbon oils (from which the lighter oils and mechanical impurities have been previously separated by distillation), by distilling from them, under atmospheric pressure, the volatile matters from which the objectionable odors arise, is not infringed by a hydrocarbon oil of the same characteristics, obtained directly from the crude petroleum by distillation in vacuo, in such a manner as to leave the heavy hydrocarbon oil as the distillate, free from the odorous bodies.

[Bill in equity [by Joshua Merrill against David M. Yeomans and others] for an injunction to restrain alleged infringement of letters-patent [No. 90,284] for

improved manufacture of deodorized heavy hydrocarbon oils, granted the complainant May 18, 1869; and for an account. The principal question in the case was as to the construction of the first claim of the patent, which was as follows: "I claim the above-described new manufacture of deodorized heavy hydrocarbon oils, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, from heavy hydrocarbons, by treating them substantially as hereinbefore described."}]³

B. R. Curtis, Chauncey Smith, and Walter Curtis, for complainant.

Causten Browne, William Bakewell, and Jabez S. Holmes, for defendants.

SHEPLEY, Circuit Judge. The invention of the complainant relates to the manufacture, from heavy hydrocarbon oils possessing the characteristic odors of such oils, by a process of treatment described in the specification in his patent, of deodorized heavy hydrocarbon oils, free from such characteristic odors, and having only a slight smell like fatty oil, and suitable for lubricating and other purposes.

The most important and intricate questions presented at the hearing of the case relate to the construction of the first claim in the patent. Considered in the broader view which courts take of the construction of claims, by considering them in connection with the specification, and the discovery and invention therein described, the question presented is: What is really the subject of the complainant's patent? Is it for a new article of manufacture, or for a new process of manufacturing? Is it, in the words of the statute, "for a new and useful art," or for "a new and useful manufacture?" It is contended on the part of the complainant that the patent secures to Merrill his product, and products

substantially the equivalent of his, by whatever process produced. The defendants, on the other hand, contend that the patent is only for a process. Another construction, which we shall have occasion to consider hereafter, may be adverted to here, that the patent is for the described product of a specially described process. The questions of construction of the claims are attended with more difficulty, from the fact that the patentee, in stating his invention and specifying his process and making his formal claim, uses the word "manufacture" in its two different meanings, signifying, respectively, the operation of making, and the thing made.

To arrive at the true construction of the claim, we must first understand the nature and properties of "the heavy hydrocarbon 114 oils," which are the subject of the described treatment, next the described treatment, process, or art, and finally, "the deodorized heavy hydrocarbon oils," the described product of the treatment. This renders necessary a hasty glance at the history and state of the art prior to the invention of the complainant.

These oils are called "hydrocarbons" because they are composed of hydrogen and carbon, and do not, like most animal and vegetable oils, contain oxygen. They are the product of distillation of bituminous coals and shales, and of natural asphaltum or bitumen. The principal source of supply at the present time, however, is from the petroleum-wells, the product of which is used either in its natural state or as converted into a variety of articles by the process of distillation. By distillation a great variety of products can be obtained by the same process from coal, coal-tar, asphaltum, and petroleum. The distillation of petroleum was at first practised only for the purpose of refining it by separating it from foreign matters, and separating from it some of the combined carbon, too large a proportion of carbon causing it to generate too

much smoke, and rendering it unfit for use in lamps as an illuminating-oil. It soon became known that, in distillation, petroleum separated into hydrocarbons of different gravities. Ordinary distillation separated the substance from fixed bodies held in solution or suspension in it, and separated the more volatile bodies from those of less volatility. By destructive distillation of petroleum, the character of the substances was changed in like manner as gas is produced by the destructive distillation of coal.

In the process of distillation, petroleum separates into hydrocarbon fluids of different gravities. The lightest fluids come over and are condensed first, and they increase in gravity as the distillation proceeds. The lighter oils come over more readily and with less heat. The heavier oils require a higher degree of heat to vaporize them. During the process of distillation, by changing from time to time the receiving-vessel into which the distillate runs from the condenser, the distillate is separated into the various products having different gravities. This is termed "fractional distillation." By continually changing the receiver from time to time, fluids of any desired gravity may be obtained, from the highest to the lowest which petroleum will yield under treatment. An arbitrary division of the products is made in practice according to the commercial uses of the products. All the fluid which first runs from the still, until it falls to a gravity of about 60° Baumé, is classed as benzole or naphtha. All in the next grade, between 60° and about 38° or 40° Baumé, is known as "burning-oil," or "refined oil," and more popularly known as "kerosene-oil," and is used principally for illuminating purposes. All the distillate below 38° or 40° Baumé is known as paraffine-oil, or lubricating-oil; and this is the product of distillation which Merrill refers to in his specification as "heavy hydrocarbon oil." The language of the specification is: "My invention relates to the

heavy hydrocarbon oils, which have heretofore been produced by distilling crude petroleum, or the crude oils obtained from the distillation of bituminous coals, bituminous shales, bituminous schists, asphaltum, and other substances producing hydrocarbon oils, by distillation. * * * These oils are well known to the trade, and distinguished from the lighter burning-oils and naphthas by the term 'heavy oils,' their specific gravity varying greatly between the asphaltum oils and paraffine oils."

These heavy hydrocarbon oils thus produced had a persistent disagreeable smell, which made them offensive and undesirable for use in close, warm rooms, as in woollen manufactories. "Attempts had been made to remove the smell by filtration, but with partial success." It had been the practice to treat such oils with acids and alkalies for the purpose of removing the peculiar offensive odor. This resulted in improving the character of the odor, but without wholly removing the persistent disagreeable smell. For several years before the date of Merrill's invention the progress of improved modes of treatment of paraffine oils had been so great that heavy hydrocarbon oils for lubricating uses had been produced and sold in large quantities, substantially, although not entirely, free from the peculiar odor of petroleum distillates.

William Atwood, a witness on the part of the complainant, who has been connected with this manufacture from its inception to this day, and who is probably as familiar with the history of the art and the properties of the different hydrocarbons as any manufacturing chemist in this country, testifies in relation to the lubricating-oils manufactured prior to the date of the Merrill invention by the Portland Kerosene-Oil Company, and known, in the evidence in this record, as the "Portland Oils." His testimony is, in substance, that the Portland oil compared with the oil manufactured by the Downer Company under

Merrill's patent, is "as good as a lubricating-oil, but not for mixing with other oils, where it is desired that its own peculiar smell shall not appear. * * * There still remained the odor of the volatile oils, which were always present. It was certainly desirable to remove any odor arising from any source." He also describes the odor of the Merrill oil as "a different odor" from the odor of the Portland oil, "being less tenacious: or, in other words, one can be completely covered up with a smaller amount of any other odor than the other."

As the Portland oils, and those substantially like them, sold by the Downer Company, before the date of Merrill's invention, were the best of the heavy hydrocarbons sold as lubricating-oils at that time, it is sufficient to refer 115 to them as showing the state of the art at that time without more particularly advertent to the Maysville and other oils, which, also, had been previously manufactured and sold, and which the witnesses have particularly described. It is also contended in behalf of the defendants that the "Neutral Topaz Oil," like that sold by the defendants, had been manufactured by Dr. Tweddle, of Pittsburg, before the date of Merrill's invention. I do not find, after careful comparison of the testimony in the case, sufficient evidence to satisfy me that such was the fact. On the contrary, I am satisfied that Merrill was the first and original inventor of the process described by him, and I therefore pass to the consideration of the second step in the inquiry as appertaining to his process, and the product of his process, and the invention claimed and seemed by his patent. The first step in this inquiry has been to ascertain what was the material to be operated upon. This we have found to be a heavy hydrocarbon oil, the product of distillation, objectionable for use as a lubricator by reason of those offensive odors peculiar to petroleum distillates. These offensive odors were due to the presence of the more volatile oils. The heavy hydrocarbon oils

were generally sold as lubricators, to be mixed by the purchasers with sperm-oil or other fatty oils. They were also mixed with such oils by the manufacturers and dealers, and the mixed oils sold to the consumers for lubricators. Before the introduction of the Merrill oil, although the producers of the heavy hydrocarbon lubricators had succeeded in so far freeing them from the volatile compounds and the lighter and thinner oils, as to put on the market and sell in very large quantities an article satisfactory to the consumers in relation to its lubricating qualities, and substantially free from the peculiar offensive odors, yet this result was attained by a sacrifice of quantity to quality in the manufacture, and was only proximately the desired result, for there still remained some of the odor of the volatile oils. This peculiar odor was so persistent, that, when mixed with other oils, in whatever proportions, it was the predominant odor, and pervaded the whole mass.

The next step to be taken in the path of inventive art, as applied to the manufacture of paraffine or lubricating oils, was to eliminate the peculiar characteristic odor of the petroleum distillates, and also to increase the proportion of deodorized heavy hydrocarbon oil produced from a given quantity of crude oils. This brings us to the second step of the inquiry, Merrill's process.

After stating that his "invention relates to the heavy hydrocarbon oils which have been heretofore produced by distilling crude petroleum, or the crude oils obtained from the distillation of bituminous coals, bituminous shales, bituminous schists, asphaltum, and other substances producing hydrocarbon oils by distillation;" and, after adverting to the various modes of treatment, by acids and alkalies, and by filtration, which had been resorted to, with only partial success, to remove the persistent disagreeable odor peculiar to these distillates, he describes his process as follows:

“To make heavy hydrocarbon oils free from the characteristic unpleasant odors of heavy hydrocarbon oils, I take the heavy oils which have been separated from the lighter oils and from mechanical impurities by distillation, and after chilling and expressing the solid paraffine, when such operation is necessary, place them in a still, heated by a fire underneath, and slowly and gradually raise the temperature, until from ten to thirty per cent. of the contents of the still are distilled over, when the still is cooled down and the remaining contents removed. The matters which go over to the condenser have a very foul, offensive, and disgusting odor, but the oil remaining in the still, if the operation has been properly conducted, is free from the characteristic offensive odor of hydrocarbon oils, and has no smell except a slight odor similar to fatty oils. It can be mixed, in all proportions, with sperm, lard, fish oils, and vegetable oils, and is so neutral in its character, that it takes the odor of the oil that it is mixed with.”

He then goes on to describe, as a separate and distinct invention, the introduction of superheated steam within the still, whereby he claims the process will be facilitated, and oil of lighter color produced. This is the subject of the second claim in the patent. As no question arises in this case out of any alleged infringement of the claim relating to this portion of the alleged invention, no further reference will be made to it. After describing his apparatus, and the mode of using it for the introduction of superheated steam within the still, he continues: “I do not wish to confine my invention to its use in combination with the fire, because I can accomplish the same result by fire-heat alone applied to the still, or by any known mode of heating the still which will heat the oil sufficiently to distil over the portions of the oil necessary to be removed.”

This, then, is his process: Taking the heavy hydrocarbon oils, the product of distillation, from which the lighter oils and mechanical impurities have been separated by distillation (and the paraffine, when necessary, also separated by the process of chilling and expressing), he distils from them the volatile matters from which the objectionable odors arise, and at the same time prevents new formations of such matters by keeping the temperature of the oil in the still below that at which these matters form by decomposition of the oil. After distilling off from twenty to thirty per cent., as the case may be, of volatile matters, the oil is left to cool in the still, and is then drawn off into tanks, for sale and use.

The product of Merrill's process is well and aptly described in the words of the specification 116 as a heavy hydrocarbon oil, "so completely divested of its fetid and pungent odors, having only a slight smell like a fatty oil, and so oily as to be greatly improved and increased in value as a lubricating-oil, or for any purposes for which it may be used, either alone or mixed with other oils."

Having determined the scope of Merrill's invention, we are better able to determine what is within the scope of his claim. The first claim in his patent is as follows: "I claim the above-described new manufacture of deodorized heavy hydrocarbon oils, suitable for lubricating and other purposes, free from the characteristic odors of hydrocarbon oils, and having a slight smell like fatty oil, from heavy hydrocarbon oils, by treating them substantially as hereinbefore described." If we were to omit from this claim the last seven words—"by treating them substantially as hereinbefore described"—there would be little doubt that the claim was broadly for a new article of manufacture, without limitation as to the mode by which it might be produced. It is claimed that the use of this last phrase in the claim, in connection with the

words in the first part of the claim, render the claim, when properly construed, a claim for the described process alone. Substantially, the argument is, that “a manufacture” of oils, by “treating them substantially as hereinbefore described,” is a claim for the described process rather than for the product.

A patentee who has invented a new process in the arts, whereby an article of manufacture is produced, new in kind and not before known, may separately claim and patent both the art and the manufacture. He cannot properly combine them in one claim. Differing in that respect from the English law, which allows a patent for “any manner of new manufactures” (a term which includes process and product), our law distinguishes between a patent for an art and a patent for a manufacture. “No doubt,” says Mr. Justice Clifford, in *Goodyear v. Providence Rubber Co.* [Case No. 5,583], “can be entertained that a new product or manufacture, and a new process or method of producing the new article, are the proper subjects of separate and distinct claims in an original patent.” Sometimes an old process produces a new product. If the thing produced be new, in and of itself, it is patentable as a new manufacture. If it be capable of being produced by various different processes, as for instance, by hand by the use of hand-tools, or by automatic or other machines, yet, when the product is independent of the process, the patent is infringed by the unlicensed manufacture of the new product by any mode of manufacture, the process of manufacture being wholly unimportant.

In other instances, however, not only does a new process produce a new product, but the process is inseparable from the product, and inheres in it after it is made, so that, upon inspection of the product, it is manifest that the process must have been employed. Whenever we see the new manufacture “vulcanite,” we know this product was made by the process of

subjecting a plastic compound of rubber and sulphur to heat, whereby the chemical change was effected which characterizes the vulcanite.

It is competent, therefore, for a patentee, under the appropriate and fitting conditions appertaining to his invention, to claim broadly the new product, however made, or to claim the new product when made by a described process. This, it appears to us, is what Merrill has claimed—a heavy hydrocarbon oil having the characteristics described in the patent, and produced by treating the oils in the manner described in the patent. He made his claim as if he believed that his oil could only be made by his process; and, if such was his belief, the evidence has not fully demonstrated to our satisfaction that he was not justified in that belief. The construction we have given to the claim is the only one which appears to us to be admissible, and the only one consistent with the language, used by the patentee, and one which, most effectually, probably, secures to him the product of his invention. The thing patented and covered by the first claim in the patent, is, consequently, a heavy hydrocarbon oil, produced from heavy hydrocarbon oils, themselves the product of distillation, and having the offensive odors peculiar to petroleum distillates; such patented heavy hydrocarbon oil being so far deodorized as to be free from the characteristic odors of heavy hydrocarbon oils, and having a slight smell like fatty oil, suitable for lubricating and other purposes, and the product or result of the treatment described in the patent.

The defendants are charged with an infringement of this first claim in the letters patent No. 90,284, to Joshua Merrill, the complainant, dated May 18th, 1869. The evidence of infringement rests in the proof that the defendants have purchased, used, and sold in the market, quantities of heavy hydrocarbon oils, known as “Neutral Topaz Oils,” being the product of a manufacture by Herbert W. C. Tweddle, of Pittsburg,

according to the process described in his patent No. 99,975, dated February 15, 1870. This neutral topaz oil is abundantly proved to possess many characteristic properties in common with those peculiar to Merrill's oil, and which distinguished Merrill's oil from the lubricating paraffine-oils which had preceded it. The two oils have substantially the same density and odor, the same amount of lubricating quality, the same freedom from the offensive odors of petroleum distillates. In both, the boiling-point was from one hundred and fifty to two hundred degrees higher temperature than the boiling-point of the best of the other hydrocarbon heavy oils. Whatever presumption of fact might arise, in the absence of other proof to the contrary, that the processes must be substantially the same, because the results are so similar, we are not left in doubt, in this 117 case, as to the process of making the "Neutral Topaz Oil." It is clear that the process is essentially different from that described in Merrill's patent. The very essence of Merrill's invention was the elimination of offensive odors existing in distillates, the product of a destructive distillation. It was a deodorizing process, consisting in the removal, by distillation, of the light offensive oils produced in the oil by previous distillations, leaving a sweet residuum in the still. This product was a deodorized oil, an oil disinfected, an oil described by him as "completely divested of its fetid and pungent odors." Tweddle does not make his oil from a distillate made offensive by the presence of the products of distillation, but directly from crude petroleum. His process is not a deodorizing or disinfecting process to remove the odorous bodies that had been formed by or existed after distillation. It is designed to so conduct the distillation as to leave the distillate of crude petroleum free from those odorous bodies. Tweddle's has been well described as a process of prevention, while Merrill's is one of cure. In the two processes, Merrill's deodorized oil is

a residuum left in the still; Tweddle's neutral topaz oil is a distillate which passes over and is condensed, and falls into the receiver. Tweddle's process is conducted in vacuo; Merrill's under atmospheric pressure. Other differences are apparent, upon examination of the different processes, as described in the respective patents, and as described by the expert witnesses. Sufficient has already been said to show that the differences in the two processes are so radical, that Tweddle's neutral topaz oil cannot, with justice, be claimed to be a deodorized heavy hydrocarbon oil manufactured from heavy hydrocarbon oils, by treating them substantially as described in Merrill's patent. Therefore the use and sale of it by the defendants was not an infringement of the first claim in the Merrill patent. Bill dismissed.

{NOTE. The case was taken on appeal, by the complainant, to the supreme court, where the judgment of the circuit court was affirmed; Mr. Justice Clifford dissenting. 94 U. S. 568.}

¹ {Reported by Hubert A. Banning, Esq., and Henry Arden, Esq., and by Jabez S. Holmes, Esq., and here compiled and reprinted by permission. The syllabus and opinion are from 1 Ban. & A. 47, and the statement is from Holmes, 331.}

² {Affirmed in 94 U. S. 568.}

³ {From Holmes, 331.}

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