

UNITED NICKEL CO. v. PENDLETON.

Circuit Court, S. D. New York. February 1, 1883.

1. PATENTS FOR INVENTIONS—ELECTRO-DEPOSITION OF NICKEL—CHEMICAL EQUIVALENTS.

Where defendant's solution is amenable to the same laws as that of the plaintiff, and to give the same result must be used under the same conditions and be free from the same impurities, and be made according to the same principles as that of the plaintiff, it is a chemical equivalent of the plaintiff's solution.

2. SAME—SIMILAR PROCESS AND MODES OF WORKING.

Where the defendant did not vary the process or the mode of working, or its essential conditions, but applied a new solution, worked in the same way and under the same conditions as the solution of the plaintiff, it is an infringement of plaintiff's claim.

3. NEW PRODUCTS—PATENTABLE.

A new product or article of manufacture is patentable as a manufacture; and where the patent describes the product and the mode of making it, having certain characteristics which are defined, and stating that they were never produced before, it is a sufficient specification of a claim.

Dickerson & Dickerson, for plaintiff.

Frost & Coe, for defendant.

BLATCHFORD, Justice. This suit is brought for the infringement of claims 1 and 4 of letters patent No. 93,157, granted to Isaac Adams, Jr., August 3, 1869, for an "improvement in the electro-deposition of nickel." The patent was before this court in *United Nickel Co. v. Harris*, 15 Blatchf. C. C. 319, and in *United Nickel Co. v. Manhattan Brass Co.* 16 Blatchf. C. C. 68. It was also before Judge SHEPLEY, in *United Nickel Co. v. Anthes*, 1 Holmes, 155, and in *United Nickel Co. v. Keith*, Id. 328.

Claims 1 and 4 are as follows:

“(1) The electro-deposition of nickel by means of a solution of the double sulphate of nickel and ammonia, or a solution of the double chloride of nickel and ammonium, prepared and used in such a manner as to be free from the presence of potash, soda, alumina, lime, or nitric acid, or from any acid or alkaline reaction. (4) The electroplating of metals with a coating of compact, coherent, tenacious, flexible nickel, of sufficient thickness to protect the metal upon which the deposit is made from the action of corrosive agents with which the article may be brought in contact.”

In the *Anthes Case*, in May, 1872, the validity of the patent was sustained, and infringement was adjudged of claim 1, as the defendant had used the solutions of the patent.

In the *Keith Case*, in February, 1874, the validity of the patent was again sustained, and infringement of claim 1 was adjudged, because of the use, in the electro-deposition of nickel, of a solution of the double sulphate of nickel and ammonia, although such solution contained a small proportion of tartrate of ammonia, and a small proportion of ammonia, the first of these being an inert substance in the solution, and the second being speedily eliminated by evaporation when the solution was used.

In the *Harris Case*, in October, 1878, the patent was held valid. Claim 1 was held to be a claim to the electro-deposition of nickel by means of any solution of the double sulphate of nickel and ammonia, 741 or of any solution of the double chloride of nickel and ammonium, however such solution may be prepared, provided such solution is so used as to be free, while the electro-deposition of nickel is going on, from the presence of potash, soda, alumina, lime, or nitric acid, or from any acid or alkaline reaction. Infringement of that claim was adjudged, and it was held that, although a sulphate or a chloride of potash or soda might be introduced into either of the named solutions, yet, if

the solution was so used, in the electro-deposition of nickel, that the sulphate or the chloride would not be decomposed, the claim was infringed. Infringement of claim 4 was also adjudged, and that claim was held to be a claim to the product or coating named in it, having the qualities described in it, when such product or coating is produced by employing the invention covered by the first claim.

In the *Manhattan Brass Co. Case*, in March, 1879, infringement of claim 1 was adjudged, and it was held that that claim was infringed, although the salts of potash and soda were introduced into the solution, provided the solution was not so used as to liberate free potash or free soda.

In the present case questions arise which were not under consideration in the other cases. In none of those cases was claim 4 involved separately from claim 1, because in all of them infringement of claim 1 was adjudged, and in all of them no solution was under consideration but the solutions named in claim 1. The present defendant uses another solution. The answer avers that he is making, using, and selling a nickel-plating solution, consisting of oxide of nickel and acetic acid, forming an acetate of nickel solution, which solution contains an excess of acid and has an acid reaction, and that he does this under letters patent No. 232,615, granted to him September 28, 1880, and in the manner described and claimed therein. The evidence supports this averment. In addition to this the record contains an admission by the defendant that a certain padlock offered in evidence by the plaintiff was electroplated by the defendant after the plaintiff's patent was issued and before this suit was brought, and that it is a metallic article, covered with a coating of compact, coherent, tenacious, and flexible nickel. The evidence shows that it is the article claimed in claim 4 of the plaintiff's patent. It does not appear

whether it was plated in the defendant's solution or not. The specification of the defendant's patent says:

"The object of my invention relates to a new and improved process of preparing solutions of oxide of nickel and acetic acid for nickel-plating purposes. I am aware that solutions of oxide of nickel and acetic acid have been used 742 to some extent in nickel-plating; but these solutions have not hitherto been so successful as to give satisfactory results, the work plated in them being imperfect, ununiform, and often covered with a deposit of black oxide of nickel. I have discovered the causes of these difficulties and the method by which they can be obviated. These difficulties in the preparation and use of solutions of oxide of nickel and acetic acid may arise from the impurities of the materials used, the cure of which is obvious to all, but are principally due to two facts: *First*s that when acetic acid is added to oxide of nickel the chemical changes taking place between constituent parts of these materials require some time, and if, as is now the practice in making said solutions, water is added to the combined acids and nickel before the chemical changes have fully taken place, chemical action is delayed and continues slowly during the use of the solution in plating; *second*, that this class of solutions—that is, acetate of nickel solutions—require to be prepared with an excess of acid and to be kept markedly acid while in use; otherwise the solution will not give satisfactory results. I prepare my solution as follows: I prefer to make it in quantities of 50. gallons, as this is a proper quantity for ordinary tanks used in nickel-plating, though either great or less quantities may be prepared at one time, if desired. To prepare 50 gallons of said solution, I take about 20 pounds of oxide of nickel, and add to it about 10 gallons of acetic acid. I then allow this mixture of oxide of nickel and acetic acid to stand for such length of time that the gases generated by their chemical action are

thoroughly evolved and pass off. In preparing said solution I would recommend that at least 24 hours should be allowed to elapse before adding the water to the mixture. The mixture of oxide of nickel and acetic acid may be placed on a stove or sand-bath for the purpose of hastening the chemical changes in the mixture by heating it. After allowing the mixture to stand for such length of time as to allow the gases to pass off, the water is added, and the solution is then ready for use. In preparing solutions of greater or less quantities than 50 gallons, the quantities of oxide of nickel and acetic acid are, of course, varied; but the same relative proportions are preserved between them. Great care should be taken in the preparation and use of this solution, that it shall contain at all times an excess of acetic acid, and if, in making and testing it, the solution is found not to have an acid reaction, sufficient acetic acid should be added to produce a markedly acid reaction. These solutions, thus prepared and used, do not become depleted in using, and require no addition of nickel to keep up their strength, other than that derived from the nickel of the anode. As no materials are used in the preparation of these solutions but oxide of nickel and acetic acid, they are free from sulphates and chlorides of nickel, and any of the compounds of ammonium and any other salts.”

The claims of the patent are these:

“(1) In the art of nickel-plating, an acid solution of acetate of nickel, consisting of oxide of nickel and acetic acid, said solution having an excess of acid. (2) The method of making acid solutions of acetate of nickel consisting in slowly digesting oxide of nickel and acetic acid with or without heat, so as to have an excess of the acid in solution, substantially as described.”

It is apparent from a reading of this specification, that the novelty in the invention, if there be any,

consists in the making of the solution, either as to the method or the resulting solution Or both. The starting point is to make a solution of oxide of nickel and acetic acid. Metallic nickel is not taken, but oxide of nickel already prepared from metallic nickel. The fact is stated that solutions of oxide of nickel and acetic acid had been before used to some extent in nickel-plating, but unsuccessfully and unsatisfactorily, the work plated being imperfect, ununiform, and often covered with a deposit of black oxide of nickel. It is then stated that these difficulties in preparing and using solutions of oxide of nickel and acetic acid may arise from the impurities of the materials used, "the cure of which is obvious to all." One of these materials is Oxide of nickel, but whether the obvious cure of the impurities in it, resulting from impurities in the metallic nickel from which it is made, or impurities resulting from the method of treating it to obtain the oxide, is the cure made known by Adams in his patent or not, is not suggested. It is very certain, from the evidence, that no cure for the deleterious impurities was ever suggested before that made known by Adams in his patent, and that he was the first person who made known what such impurities were. An important passage in the specification of the defendant's patent is that in which he says that, "as no materials are used in the preparation of his solutions but oxide of nickel and acetic acid, they are free from sulphates and chlorides of nickel and any of the compounds of ammonium and any other salts."

The defendant's solution is an acetate of nickel solution resulting from the treatment of oxide of nickel with acetic acid. The solution is free from the injurious substances specified in the Adams patent as injurious, unless the addition of an excess of acetic acid is a departure from the precautions pointed out by Adams. The defendant's solution is free from potash, soda, alumina, lime, and nitric acid, and is a pure solution,

in the sense of being free from those substances, which substances, Adams states, in his patent, must be eliminated, either by dispensing with their use or effectually removing them if they are employed. The defendant's specification requires freedom from all foreign metallic salts. The evidence shows that a pure acetate of nickel, used without an excess of acetic acid, will, under proper conditions of strength of current and strength of solution, produce such a reguline deposit of nickel as Adams' patent contemplates, and that the absence of any acid or alkaline reaction in the acetate produces the best results especially as to the quantity of 744 metal deposited with a given battery power in a given time. An excess of acetic acid impairs the efficiency of the solution. It is shown that the presence of an acid reaction, by turning litmus paper red, by no means indicates the presence of free acid, so as to make a practically injurious departure from neutrality, in the direction of acid reaction. On the other hand, it appears that an excess of acetic acid has the effect to neutralize the deleterious properties of such alkaline substances as soda, potash, and lime, which, if finding their way into the solution, will injure the quality of the deposit. Such excess of acetic acid does not neutralize such impurities as hydrochloric acid, sulphuric acid, or nitric acid, and they must be prevented from getting into the solution at all. The defendant's mode of making the acetate precludes their introduction otherwise than through the use of the dips, and the Adams patent especially enjoins that they must not be introduced through, the dips.

At the time of Adams' invention it was known that the addition of a slight excess of acid to a simple salt of nickel would prevent the deposit of oxide of nickel upon the cathode, by taking up the oxide, and thus act in the same manner as ammonia salts in the solutions of the Adams patent. Under the foregoing premises, as a simple acetate will produce a greater

deposit of nickel for the same amount of current in a given time than will a simple acetate with a slight excess of acetic acid, and as such slight excess of acetic acid will prevent the injurious deposit of oxide of nickel in case certain alkaline impurities are present, and as that result is accomplished in the same way as by the use of ammonia salts in the solutions of Adams' patent, those solutions and the defendant's solution are equivalent in nickel-plating, and in their mode of operation and in the character of the deposit.

The fair reading of the Adams specification is that, in order to obtain the best results, the solution should be as nearly neutral as possible, and should be especially free from acid. The invention of Adams, as shown in his specification, so far as respects sulphuric and hydrochloric acid, was that the presence of such quantities of those acids as would be likely to get into the solutions named in claim 1, in preparing and using them, would prevent any useful result. Infringement of the claim cannot be avoided by introducing such small quantities of any of the injurious substances named by Adams as will produce no practical injurious effect.

But there is another view of claim 1 which leads to the same conclusion. Practical nickel-plating, as an art, had its origin in the

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Adams patent. Before that, because of the properties of nickel, it had been suggested that successful, practical nickel-plating would be a very useful invention. The invention made by Adams, and set forth in his specification, covers the art of practical nickel-plating as now practiced. Before Adams, persons trying to plate with nickel proceeded as with gold, silver, and other metals, and failed. Adams discovered that it was necessary to avoid, in nickel-plating, the use of what was either not hurtful or was beneficial in other plating, and pointed out clearly what must be avoided. He mentions certain solutions which

he says will give the best results of any solutions then known. He describes in detail the mode of preparing those solutions so as to get rid of the injurious substances. His invention applies to all nickel-plating solutions which act electro-chemically like the solutions he mentions, for the facts he develops are true of all such solutions. It applies to the defendant's solution, for that is the equivalent, electro-chemically, as regards nickel-plating, of the solutions mentioned by Adams. The defendant's solution is amenable to the same laws, and, in order to give the best results, must be used under the same conditions, and be free from the same impurities, and be made and used according to the principles laid down by Adams. Before Adams no product possessing the properties described by him as those of his product was known. He introduced a new process, that of claim 1, as well as a new product or manufacture, that of claim 4. In attempts at nickel-plating before, acids had been used which were known solvents of nickel. Adams used those acids to prepare his solutions. When he speaks of acid reaction in his specification, and in claim 1, he must be regarded as referring only to the acids he had spoken of as used to clean the articles to be coated, or as solvents of nickel, namely, nitric, sulphuric, and hydrochloric acids. Those are the acids which he mentions as used to make salts of nickel, the metal being dissolved in the acids. Hence, the acid reaction spoken of by Adams includes only the mineral acids referred to by Adams, those being the acids, and the only acids, which could get into the solutions referred to by Adams, or into any plating solutions then known. Adams did not invent these solutions of claim 1. He showed how to prepare and use them successfully. The solution is the vehicle whereby the nickel is conveyed from the anode to the cathode, holding in suspension the nickel to be deposited, and supplying the place of the deposited nickel by taking other nickel

from the anode. The real invention was in discovering the proper conditions for the use of such vehicle, ⁷⁴⁶ not the particular chemical composition of the vehicle. Any proper vehicle used with those conditions would do the work. Any vehicle in the use of which those conditions should not be observed would not do the work. The actual chemical composition of the solution, so long as it should be a good working solution, was and is unimportant. The only material point was its freedom from the injurious constituents indicated by Adams. In this view, the defendant's solution is an equivalent, in the sense of the patent law, for the solutions of claim 1. It accomplishes the same results by the same electrochemical mode of operation, by the same process, with the absence of the same injurious elements. If claim 1 of the Adams patent claimed the discovery of a new solution, as does claim 1 of the defendant's patent, the question would be a different one. But the claim is a claim to a new method of using solutions, requiring specified conditions, by the absence of specified injurious elements. The defendant uses his solution in the same way, avoiding those injurious elements, and observing the prescribed conditions. The oxide of nickel with which the defendant starts is now an article of commerce, prepared to be used to make nickel-plating solutions, and is made so as to be free from the injurious substance specified by Adams. In making it the use of nitric acid as a solvent is avoided.

The case of *Tilghman v. Proctor*, 102 U. S. 707, is an authority for the conclusion that, on the foregoing facts, claim 1 of the Adams patent ought to have the construction above indicated, and that, so construed, it is infringed by the defendant. It is a claim for a process which Adams invented. He describes a mode, and the best mode then known, of carrying it out with success. All that the defendant has done is not to vary the process, or its mode of working, or its essential

conditions, but to apply a new solution worked in the same way and under the same conditions. It must, therefore, be held that infringement of claim 1 is established.

As to claim 4 it is distinctly a claim to a product or article of manufacture, an I patentable as a manufacture. It was a new product, never known before Adams' invention. As already said, that claim was never construed, in any case before referred to, where a decision was made sustaining claim 1. Notwithstanding anything said in the *Harris Case*, the conclusion I have now reached is that claim 4 is a valid claim, irrespective of any employment of the invention covered by claim 1, and that that claim has been infringed. It is contended that claim 4 claims a result, an idea, an abstract principle, and that its invalidity is shown' by the decision in the case of *O'Reilly v. Morse*,

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15 How. 62. But a patent for a process or a product is a different thing from a patent for a principle, as explained by Mr. Justice BRADLEY in *Tilghman v. Proctor, ubi supra*, in commenting on *O'Reilly v. Morse*. A manufacture or product, if new, may be claimed irrespective of the mode of making it.

In *Cohn v. U. S. Corset Co.* 93 U. S. 366, a patent for a corset having certain features, and which did not describe any process of making it, was defeated by a prior description of the corset. In the present case the patent describes the product, and the mode of making it, and claims it. The text of the specification sets forth as one of the inventions deposits of nickel having certain characteristics, which are defined, and it states that they were never produced before.

There must be a decree for the plaintiff as to claims 1 and 4, for an account and an injunction, as prayed in the bill, with costs.

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