UNITED NICKEL CO. v. MANHATTAN BRASS CO. ET AL.
SAME v. JACKSON ET AL.

{16 Blatchf. 68; 4 Ban. & A. 173.}[1]

Circuit Court, S. D. New York. March 11, 1879.

PATENTS—NICKEL PLATING—SOLUTION—INFRINGEMENT.

1. The decision in United Nickel Co. v. Harris {Case No. 14,407}, sustaining the validity of the letters patent granted to Isaac Adams, Jr., August 3d, 1869, for an "improvement in the electro-deposition of nickel," reviewed and confirmed.

{Cited in United Nickel Co. v. Pendleton, 15 Fed. 740.}

2. The said patent is infringed, although the salts of potash and soda are introduced into the solution, provided the solution is not so used as to liberate free potash or free soda.

{3. Cited in Hood v. Boston Car-Spring Co., 21 Fed. 69, to the point that a patent is not invalidated by statements in an earlier publication, unless those statements are full and definite enough to inform those skilled in the art how to put in practice the invention now patented.}

{These were suits by the United Nickel Company against the Manhattan Brass Company and others, and by same plaintiff against William H. Jackson and others. Heard on motions for preliminary injunctions.}

Dickerson & Beaman, for plaintiffs.

Roscoe Conkling and Frost & Coe, for defendants.

BLATCHFORD, Circuit Judge. It is set forth, in the moving affidavits, that the defendants in these suits united with various other nickel platers, in the defence of the suit brought by the plaintiffs, in this court, against Harris and Weston {Case No. 14,407}, and contributed to the expenses, and have, in these suits, employed the same counsel, and made substantially the same defences and answers, as in said suit against

Harris and Weston. There is no denial of these allegations.

It is also set forth, in the moving affidavits, that the step nickel plated by the defendants in the first suit, and the grate crown nickel plated by the defendants in the second suit, are plated each with a coherent, compact and tenacious coating of nickel; that, said step and said grate crown have each been plated by a process described in the Adams patent of August 3d, 1869 {No. 93,157}, and could have been plated by no other process; and that no practical nickel plating can be done, unless the process described in said patent is followed, or some material or substantial part thereof. Professor Chandler sets forth, that he has examined said step 735 and said grate crown; that, in his opinion, the coating on each of them is a coating of compact, coherent, tenacious and flexible nickel, of sufficient thickness to protect the metal on which the deposit is made from the action of corrosive agents with which said articles maybe brought in contact; that, without knowing exactly the composition of the solution in which each article has been nickel plated, he is very confident that it has been nickel plated in a solution which, in use, is free from the presence of potash, soda, almumina, lime or nitric acid, or from any acid or alkaline reaction; and, that the solution was a double sulphate of nickel and ammonia, or a double chloride of nickel and ammonium, or a mixture of the two, that is, the solution which was used by the defendants in said suit against Harris and Weston. Professor Morton makes an affidavit to the same effect. These affidavits are not contradicted. If the articles in question were not nickel plated in a solution and by a process such as stated, the defendants, knowing the facts, and having the means of stating them, have not set forth to the contrary, or by what solution or process the articles were plated.

The step and the grate crown were so nickel plated in January, 1878. The defendants produce affidavits to show, that, in November, 1878, they each used, in nickel plating, a solution which did not contain any ammonia, or any of the compounds of ammonia, and was not a solution of the double sulphate of nickel and ammonia, or a solution of the double chloride of nickel and ammonium, and was not a mixture of said two solutions, and was not the same solution as, nor a similar solution to, the solution which was decided, in the suit against Harris and Weston, to be an infringement of the said Adams patent, and is not an infringement on said patent. The affidavits swear to the above conclusions and deductions, in the above language, but nowhere set forth what was the chemical composition of the solutions of November, 1878, although it is set forth that analyses of them were made on which such conclusions and deductions are based. The nickel plating done by said solutions of November, 1878, is set forth, in one case, to have been "a perfectly uniform, coherent and beautifully colored coating of nickel," and "a tenacious, coherent and flexible coating of nickel, amply sufficient in thickness to protect the surfaces" of the objects which were nickel plated in it, "from exposure to the air," and, in the other case, to have been "a coating of compact, coherent, tenacious and flexible nickel," and "a perfectly uniform, coherent and beautifully colored coating of nickel." It is not shown, by the defendants, that the step or the grate crown complained of was plated in a solution made like that of November, 1878. We are not trying, in these cases, the solutions of November, 1878, or the articles plated in them, nor have the plaintiffs had any opportunity to produce evidence as to such solutions or articles. We are concerned now only with the step and the grate crown, and the solutions and processes by which they were plated.

The opposition to the motions for injunctions in these cases is based upon the affidavits of four chemical experts, Professor Seeley, Mr. Weston, Professor Doremus and Dr. Antisell. Professor Seeley was an expert for the defendants in the suit against Harris and Weston Mr. Weston was one of the defendants, and also a witness, in that suit, and the other two gentlemen were not witnesses in that suit. The object of these affidavits is to establish that this court reached an erroneous conclusion in the suit against Harris and Weston, and that it ought now to reverse that conclusion. I have read these affidavits with care, and have re-examined the testimony in the suit against Harris and Weston, and have considered with attention the argument of the eminent counsel for the defendants, both as orally delivered and since in print, and am unable to see that anything now advanced was not presented in evidence and argument in the suit against Harris and Weston, or that the judgment rendered in that case did not advert to all the points now urged for the defence.

Professor Seeley testifies, that he has served as expert on the part of the defence in seven suits brought by the United Nickel Company on the Adams patent of 1869; that the defence in the suit against Harris and Weston was intended to be complete and exhaustive; that every theory of the construction of the first claim of the patent, which had any color of plausibility, was carefully scrutinized and tested; that the relation of caustic potash, &c, to the solution, and the theory of Professor Babcock, came under an investigation which employed the best resources of practical experiments and scientific knowledge on the part of the defence; and that the conclusion arrived at was, that the first claim of the patent could not be interpreted to mean or imply that the substances therein named were in a free or caustic state. Professor Seeley states Professor Babcock's theory to be, not

only that the words, potash, &c, of the first claim are used to indicate those substances in a free or caustic state, but that those substances are eliminated, developed or produced in the solution during the operation of electro-deposition; and that such theory considers the salts of potash per se not injurious, but that, being in the plating solution when they are under the influence of the electric current, their bases are set free, and such bases are then present and become actively injurious. In opposition to such theory. Professor Seeley states, that free or caustic potash and soda cannot possibly, in any circumstances whatever, for a moment exist in a solution either of salts of ammonia or salts of nickel, or in a solution of the double salts mentioned in the claim of the patent; and that potash and soda, in contact with the 736 solution of the double salts, instantly and completely go out of existence an caustic potash and caustic soda.

Dr. Antisell states, that no injurious consequences arise from any possible presence of basic elements, such as potash, soda, &c, since those elements, if so produced, cannot exist but for a moment, and are at once converted into sulphates of those alkalies, by robbing the sulphate of ammonia of its acid.

Professor Doremus states, that free, basic or caustic potash, soda or lime, when introduced into a solution of the double sulphate of nickel and ammonia, or when produced at the negative pole by the electric current, will instantly combine with the sulphuric acid, and form therewith sulphates of potash, soda or lime; and that the same is true in regard to those substances and a solution of the double chloride of nickel and ammonium, chlorides of potassium, sodium or calcium being instantly formed.

Mr. Weston's affidavit is to the same effect as the affidavits of the other three gentlemen.

The gist of the argument on the part of the defence, based on these affidavits, is, that, if the first claim of the patent is for the exclusion of sulphates and chlorides, it has not been infringed, because the sulphate of potash and the chloride of soda are freely introduced into the solution used by the defendants; and that, if such claim is for the exclusion of free or basic or caustic potash or soda, it is a claim to the exclusion of what cannot, under the laws of chemistry, exist in the solution. But, the views urged in the affidavits of the experts for the defendants, and in the argument of their counsel, do not meet the case as established by the evidence taken in the suit against Harris and Weston. That case is this: The salts of potash and soda, in the solution, are harmless, under certain conditions. Under certain other conditions they are injurious. If the concentration of the solution, its resistance, the strength of the current, and, perhaps, other matters, are not carefully adapted to the presence of such salts, the effect of the current will be to decompose those salts and liberate, for the moment, the potash or the soda. Potash, when so produced or liberated in the solution, causes a precipitation of the oxide of nickel, which attaches itself to the article that is being plated, and affects the adhesion and character of the nickel deposit, and also its color. The same thing is true of soda and its salt. The patentee, in his specification, sets forth, with great distinctness, that potash and soda are injurious, and will prevent the result of obtaining a coating of compact, tenacious, flexible nickel, of adequate thickness. The precipitation of the oxide of nickel is injurious, and prevents such result. The production of potash or soda in the solution, in such wise as to cause the precipitation of the oxide of nickel, leads to such injurious effect. Potash or soda may be produced in the solution, if the-salts of potash or soda are introduced into the solution, unless such care is taken as to the

surrounding conditions, that such salts are not decomposed. The patentee points out the fact, that the solution must be so used as to be free from the presence of potash or soda. The salts of potash and soda are not potash and soda, and, unless decomposed, so as to liberate potash and soda, produce no injurious effect. When it is shown that the liberation and consequent presence, but for a minute space of time, of potash and soda, but sufficiently long to produce a precipitation of the oxide of nickel, result from the decomposition of the salts of potash and soda, and produce the injurious consequence referred to, and when it is also shown that those salts, though present, produce no such injury, if not decomposed, it requires very strong evidence to arrive at the conclusion that the patentee, in saying that the solution must be so used as to be free from the presence of potash or soda meant that it must be so used as to be free from the substances that are not injurious and not free from the substances that are injurious. Yet that is what the court is asked to say. The evidence, instead of being to that effect, is decidedly the other way. The language and proper interpretation of the specification were fully considered in the decision rendered in the case against Harris and Weston, and nothing has been presented to cause any change in the views there expressed. On the contrary, the case on the part of the plaintiffs is fortified by the affidavits of Professor Henry Morton and Professor Charles F. Chandler, chemists of eminence, who were not witnesses in the suit against Harris and Weston. Professor Morton says: "I have examined into the state of the art of nickel plating prior to August, 1869, at which time certain letters patent were granted to Isaac Adams, Junior, for improvements in electrodeposition of nickel. I have read said letters patent, bearing date August 3d, 1869. and believe that I understand the same, the processes therein described, and the precautions

therein given. Prom my knowledge of the state of the art prior to the publication of said letters patent, there was nothing in any book or journal that would have given such instruction to one familiar with the processes in use for electroplating with other metals, as would enable him to successfully practice the art of nickel plating, and I believe that the matter set forth in the above mentioned letters patent first gave to the world a process by which electroplating with nickel could be practiced as an art. The conditions under which metals may be successfully deposited from their solutions by means of an electro-current, vary greatly with different metals, so that what would be favorable for one metal may be fatal to success with another; and there is no 737 evidence, that, at the date of the Adams patent, anything whatever was known of the particular conditions which are essential to success where nickel is employed. It was well known that nickel could be deposited by the battery, and, in a few instances, good deposits had actually been obtained, but, though it had been stated that a deposit of nickel upon various articles by means of the galvanic current would be very valuable if it could be practically carried on in the arts, yet no such practical electroplating with nickel had ever been carried on. Repeated attempts had only resulted in as many failures, and the conditions necessary to the successful prosecution of this art had never been made public, nor, as I believe, were they known. I have read all the quotations offered as exhibits in the suit of these complainants against George J. Harris and Edward Weston, having reference to the electro-deposition of nickel, published prior to August 3d, 1869, and have given especial attention to the quotation from Muspratt-Stohman's Chemie, Theoretische, Praktische, und Analytische, in Anwendung auf Künste und Gewerbe,' vol. 2, page 1,188, published in Braunschweig, in 1866, by C. A.

Sehwetschte und Sohn, and am certain that there is nothing found in any of these books which would so instruct a practical plater as to enable him to carry on electroplating with nickel, as a business or practical art. As regards the process given in the work just named, and which, as I understand, is conceded to contain the fullest information about nickel plating published prior to August 3d, 1869—in the first place, I do not consider that it gives sufficient information to enable a practical nickel plater, by simply following its directions, to make even an efficient nickel plating solution; secondly, it does not even suggest any of the conditions which are necessary to successfully carry on the art of electroplating with nickel, after a practical solution has been made. Dr. Adams was, in my opinion, the first to establish or discover the conditions under which successful nickel plating can be carried on, and I am convinced, by the result of my own experiments, that the conditions essential to practical success are correctly set forth in his patent of August 3d, 1869, and that it is necessary for the successful use of a nickel plating solution, that it should be prepared and used in such a manner as to be free, while the electro-deposition of the nickel is going on, from the presence of potash, soda, alumina, lime or nitric acid, or from any acid or alkaline reaction, and I know, from experiment, that, by a solution so prepared and used, a metallic article can be practically electroplated with a coating of compact, coherent, tenacious and 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 come in contact." Professor Chandler gives like testimony in his affidavit.

The patent in question has been sustained, on final hearing, in the first and second circuits. The plaintiffs show that they have granted some sixty licenses under it, in Massachusetts, Connecticut, New York, Ohio,

Pennsylvania, Maryland, Maine, and Rhode Island, and that they are willing to grant licenses to responsible manufacturers, on fair and reasonable terms. They are entitled to be protected in their rights, and preliminary injunctions must issue in these cases, as prayed.

[1] {Reported by Hon. Samuel Blatchford, Circuit Judge, reprinted in 4 Ban. & A. 173, and here republished by permission.}