For the reasons stated in Brush Electric Co. v. Electrical Accumulator Co., 47 Fed. Rep. 48, 55, this decision has been reached with reluctance. Those reasons do not, it is true, apply with the same force to an invention made abroad by a foreigner as to an invention made by one of our own citizens; but the statute in its practical operation has failed to remedy the supposed evil at which it was aimed, and the duty of overthrowing a valuable patent under its provisions is one that the court would naturally wish to avoid. But the question, do the patents cover the same invention? is fairly presented, and its decision cannot be avoided.

After giving the complainant the benefit of every reasonable doubt, the court is convinced that the question must be answered in the affirmative. The longer the record is studied, the more settled becomes the conviction that the invention which Faure patented in Spain and in the United States was the invention which he made and patented in France, that, so far as the inventor was concerned, the language was substantially identical and that the changes in phraseology made by the translators and patent-office officials, of which changes the inventor was ignorant, did not and could not operate to change the invention.

It follows that the defendants are entitled to a decree dissolving the injunction issued April 12, 1889.

EDISON ELECTRIC LIGHT CO. et al. v. ELECTRIC MANUF'G CO. et al.

(Circuit Court, E. D. Wisconsin. July 20, 1893.)

1. PATENTS FOR INVENTIONS—PRELIMINARY INJUNCTION—PRIOR ADJUDICATIONS—PROOF OF NEW DEFENSE.
   Where a patent has been sustained after protracted and expensive litigation, the right of the patent owner to a preliminary injunction against a new infringer can only be defeated by a new defense, which is sustained by such convincing proof as will raise a presumption that it would have defeated the patent, if produced at the original trial. This rule requires that every reasonable doubt shall be resolved against the new defense. Edison Electric Light Co. v. Beacon Vacuum Pump & Electrical Co., 54 Fed. Rep. 678, followed, and Same v. Columbia Incandescent Lamp Co., 56 Fed. Rep. 496, disapproved.

2. SAME—INCANDESCENT ELECTRIC LAMPS.
   On a motion for a preliminary injunction against the infringement of letters patent No. 223,898, issued January 27, 1880, to Thomas A. Edison, for an improved electric lamp, the proofs of an alleged anticipation by Henry Goebel in 1854, and subsequently, are insufficient to overcome the effect of the adjudications sustaining the patent, and the injunction should therefore issue. Edison Electric Light Co. v. Columbia Incandescent Lamp Co., 56 Fed. Rep. 496, disapproved.

In Equity. Bill for the infringement of a patent. On motion for a preliminary injunction. Granted.

R. N. Dyer, C. E. Mitchell, F. P. Fish, W. G. Beale, and H. G. Underwood, for complainants.

W. C. Witter, W. H. Kenyon, A. P. Smith, and W. H. Webster, for defendants.

SEAMAN, District Judge. This is a motion for preliminary injunction. The complaint alleges infringement by defendants, manufacturers of electric lamps at Oconto, Wis., of the second claim of letters patent No. 223,898, issued to Thomas A. Edison January 27, 1880, and adjudged valid, after protracted contest, in the circuit court for the southern district of New York, affirmed by the circuit court of appeals of the second circuit. Edison Electric Light Co. v. United States Electric Lighting Co., 47 Fed. Rep. 454; Id., 3 C. C. A. 83, 52 Fed. Rep. 300. The defendants have answered, the original answer admitting infringement of said second claim, as construed in said decisions, but by an amended answer (allowed at the hearing) take issue upon such infringement, avowedly upon their proposed new showing as to the prior state of the art, through the alleged Goebel invention, and the narrower construction which should thereby be placed upon said second claim, and further setting up prior invention by one Henry Goebel, not litigated in the New York case. For and against the motion, voluminous records, affidavits, and depositions, with sundry exhibits, are presented, to which reference will be made.

It is shown that litigation in behalf of this patent has been actively carried on since May, 1885, both directly and collaterally; that after obtaining favorable decisions in other cases, wherein issues under this patent were involved, and defending successfully against the Sawyer & Mann patent, (Consolidated Electric Light Co. v. McKeesport Light Co., 40 Fed. Rep. 21,) judgment was obtained in July, 1891, in its action in the southern district of New York, against the United States Electric Lighting Company, sustaining the second claim of this patent, and decreeing injunction, (47 Fed. Rep. 454,) which was affirmed by the circuit court of appeals for the second circuit in October, 1892, (3 C. C. A. 83, 52 Fed. Rep. 300.) The defendant in that case having turned over to the Sawyer & Mann Electric Company the business of manufacturing, suit was brought against the latter, and injunction granted, and affirmed by the same circuit court of appeals, in December, 1892. 3 C. C. A. 605, 53 Fed. Rep. 592.

It further appears that injunctions have been granted against other infringers in this circuit and in various other circuits without serious contest, and that in the district of Massachusetts, in complainant's suit against the Beacon Vacuum Pump & Electrical Company, the motion for preliminary injunction was vigorously contested upon the grounds presented here, and in an exhaustive opinion handed down by Colt, J., February 18, 1893, the injunction was ordered. 54 Fed. Rep. 678. On the other hand, in a suit by complainant against Columbia Incandescent Lamp Company, in the eastern district of Missouri, upon similar motion and additional affidavits, an opinion was rendered April 21, 1893, by Hallett, J., refusing the injunction, if the defendants should give a bond. 56 Fed. Rep. 496. All of the records and affidavits before the courts, respectively, in the Beacon Case and in the Columbia Case, are here, and much additional testimony: that upon the

part of defendants, taken since such hearing, in rebuttal, under an order of this court, being in the form of depositions, and with cross-examination of witnesses. Therefore, this court has the benefit of the opinions handed down at those hearings, and the embarrassment, as well, of deciding here between apparent differences in views as to the measure of proof demanded.

In the opinion in the Beacon Case, the rule applicable to this defense against the motion is stated, citing a number of authorities, as follows: "The burden is on the defendant to establish this, and every reasonable doubt must be resolved against him;" also, that "the presumption of novelty is not to be overcome, except upon clear and convincing proof." The showing there made is reviewed at length, and found insufficient to meet the requirements of the rule.

The opinion in the Columbia Case is not yet reported, but in a copy, furnished for this hearing, the views which controlled the decision are stated as follows: "There is not the measure of proof demanded by complainants' counsel, who maintain that the court should require proof of the fact beyond reasonable doubt. This degree of certainty is not often attained upon testimony in the form of affidavits when the issue is contested, and it is not reasonable to demand such certainty as to the defense. Complainants must show a clear right in support of a preliminary writ, and a defense which puts the case in doubt is sufficient to defeat the application;" and for its conclusions against the injunction holds: "It is enough to say that there is a fair preponderance of testimony in support of the Goebel claim."[1] Decisions of the supreme court have settled beyond controversy that, for the defense of anticipation and prior use against a patent, the proof must be "clear, satisfactory, and beyond a reasonable doubt." The Barbed-Wire Patent, 143 U. S. 275, 284, 12 Sup. Ct. Rep. 443, 450; Cantrell v. Wallick, 117 U. S. 689, 6 Sup. Ct. Rep. 970; Coffin v. Ogden, 18 Wall. 120. And that has been the constant rule in this circuit. Smith v. Davis, 34 Fed. Rep. 783; Manufacturing Co. v. Haish, 4 Fed. Rep. 900, 10 Biss. 65; American Bell Tel. Co. v. American Cushman Tel. Co., 35 Fed. Rep. 739.

The decisions and text-books agree upon the general rule stated in the opinion of Judge Colt, (54 Fed. Rep. 679,) that an adjudication of the validity of his patent, after bona fide contest, and especially after long and expensive litigation, entitles the complainant to a preliminary injunction, in a suit against other infringers, and that the only question open upon his motion therefor is that of actual infringement by the defendant of the claim so adjudged valid. Other defenses are then reserved to final hearing, and injunction issues as of course in the same court and by comity in other courts. One exception to this rule is sometimes allowed, and that is where there is clear showing of a meritorious defense which was not before the court in the original suit, and which, had it entered into consid-

[1] 56 Fed. Rep. 496.

eration, would probably have defeated the patent or claim. It is under this exception that the defendants assert their right to oppose this motion, and their affidavits are directed to proving an invention and use by Henry Goebel prior to that of Edison. Although sundry other claims of priority have been set aside by the courts in the course of the litigation, this one was not presented, and the defendants have a right to their day in court for its hearing. The question here is whether there is such clear showing of merit for this claim now asserted that the defendants should be relieved from the general rule by denying in their case the usual injunctional order, and the primary inquiry is, what must be the measure of proof demanded? Must it be of the quality and quantity required to defeat the patent at final hearing,—"clear, convincing, and beyond reasonable doubt,"—as held by Judge Colt, or will it suffice, for denial of the motion, that it shows "a defense which puts the case in doubt," as held by Judge Hallett? It is clear that the presumptions must be in favor of the patent, and that it cannot be overthrown by a mere doubt. I think the true test for proof upon the motion is that it shall be sufficient to raise a presumption that it would have defeated the patent, had it been produced at the trial. This would demand, at least, the full measure required to overcome the presumptive force of the patent, and that every reasonable doubt be resolved against the defense, here as it would be there, as held by Judge Colt. In the eyes of the law, at this stage, the complainants stand upon their rights, with their letters patent confirmed after arduous contests, and entitled to preliminary injunctions against infringers; and the defendants must place themselves entirely within the exception to the rule, if they invoke the privileges of that exception, and would deprive the complainants of the fruits of their hard-earned victories. The rule held by Judge Colt will therefore be adopted here, and the following additional authorities are cited as supporting it: Macbeth v. Glass Co., 54 Fed. Rep. 173; Accumulator Co. v. Consolidated, etc., Co., 53 Fed. Rep. 795; American Bell Tel. Co. v. Southern Tel. Co., 34 Fed. Rep. 795; Seibert Cylinder Oil-Cup Co. v. Michigan Lubricator Co., Id. 33; Ladd v. Cameron, 25 Fed. Rep. 37; Hussey v. Whitely, 2 Fish. Pat. Cas. 120; Jones v. Merrill, 8 O. G. 401; Potter v. Fuller, 2 Fish. Pat. Cas. 262. I have examined with care each of the authorities cited in the opinion of Judge Hallett, and others noted by defendants' counsel, but they do not impress me as supporting the rule held in that opinion, or as modifying the rule pronounced in the cases above cited.

With the adoption of this rule, it is not necessary to review in this opinion the affidavits and exhibits which were before the court in Massachusetts, in the Beacon Case, as a careful examination has fully satisfied me with the review and criticisms contained in the opinion of Judge Colt, and the conclusions reached by him at that stage. And of the additional evidence introduced at St. Louis, in the Columbia Case, it might be sufficient to hold, in accordance with the view stated in the opinion of Judge Hallett, with which I agree,

that "there is not the measure of proof demanded" by this rule. Resting upon those conclusions, it would only be necessary to consider the new testimony which has been presented here, and determine whether it has cleared the doubts which have come from the former hearings, but an understanding of the conclusions reached requires for preface a statement of some of the doubts which have been impressed upon my mind by these records.

Edison's discovery was published late in 1879. It promised an incandescent electric lamp which would supply the great want of an operative commercial light, suitable for domestic uses, cheap and practical, and aroused great interest and excitement in commercial and scientific circles. Lighting by electricity had long been an accomplished fact, in arc lamps and various single burners, but the problem which had remained unsolved was a method of subdivision of the light, for which scientists in Europe and America were seeking, and which many of them pronounced impossible,—an ignis fatuus. It was the solution of this problem that Edison thus announced. As stated by Mr. Justice Bradley in the McKeesport Case, 40 Fed. Rep. 29-31:

"This was the real, the grand, discovery in the art of electric lighting, without which it could not have become a practical art for the purposes of general use in houses and cities. * * * We think we are not mistaken in saying that, but for this discovery, electric lighting would never have become a fact."

The invention claimed by Edison was a lamp which is "the embryo of the best lamps now in commercial use." The second claim of his patent, here involved, described it as follows:

"The combination of carbon filaments with a receiver made entirely of glass, and conductors passing through the glass, and from which receiver the air is exhausted, for the purposes set forth."

The thread or filament of carbon for a burner was the fundamental discovery to obtain this subdivision of electric light, for by its use he obtained the high resistance which was essential to the multiple arc system, and avoided the use of enormous conductors of the electric current, the cost of which were otherwise prohibitive of subdivision. He found that, for stability of this thin carbon, it was necessary to have a high vacuum, and remove all gases, to prevent what he calls "air washing." This led to the entire-glass receiver or chamber for the lamps, and finally to platinum leading-in wires sealed into the glass, because "the coefficient of expansion of glass and platinum was the same," and the high vacuum would be retained, while iron or copper wires would destroy it. This discovery was therefore in successive steps, and only as essentials for the great object of subdivision of light.

Each of the steps is claimed to have been discovered or taken by Henry Goebel many years before Edison. Against all the improbabilities of this claim, the story, as related by Goebel in his several affidavits with detailed confirmations by many witnesses, is interesting, circumstantial, and in many respects plausible, and

I do not wonder that it has attracted such earnest advocacy by able counsel contesting this patent.

Henry Goebel is now 75 years of age; a German; came to this country in 1848, and has every since resided in the city of New York. He appears to have been an excellent and ingenious mechanic, engaged in watchmaking, manufacturing barometers and thermometers and delicate instruments, and has shown much interest and aptitude in electrical appliances and experiments. He claims to have made incandescent electric lamps, identical with the Edison claim in all particulars, from about 1854, and that these lamps were operated by primary batteries of his own construction, and used at his store for show and lighting in various ways, and for some time had such lamps on a wagon traveling about the streets of New York, with a telescope, also of his own construction. He says he made many of these lamps each year prior to Edison's patent, all for his own use or gratification, but not so many after 1872 as before. In 1880, and later, he was engaged in making electric lamps for the American Electric Light Company, a rival of Edison's, and making similar lamps. This meager statement cannot fairly present his story, but must suffice, with mention that he was, before leaving Germany, very intimate with a Professor Munchausen, who had experimented with the production of arc and incandescent electric lights, and gave him the ideas which he carried out here. Goebel does not claim that he ever worked or thought in the line of subdivision of electric lights, and the history of that art presents strong reasoning against his anticipation. As to the improbabilities of this discovery so long undiscovered, it is sufficient to refer to the comments in the opinions in Telephone Cases, 126 U. S. 556, 8 Sup. Ct. Rep. 778, in American Bell Tel. Co. v. American Cushman Tel. Co., 35 Fed. Rep. 735, and in Same v. People's Tel. Co., 22 Fed. Rep. 309, as well applicable here. I will refer to some of the doubts raised, upon the defendants' showing, as to the actual components of these alleged Goebel lamps, remarking that the testimony of the numerous witnesses, however honest, speaking of such delicate structures seen by them many years ago, cannot justly be accepted as absolute verity.

1. This fundamental, thread-like carbon burner of Edison only became necessary as a means to subdivision of electric light, which was not contemplated by Goebel. The latter operated with a primary battery, for which the larger "pencil" form of carbon or other material would answer as well, would be much more stable, and more easily made. This filament is most delicate and difficult to make, and must have a high vacuum, or it will be instantly consumed. It seems unnecessary and undesirable for his purpose, and no satisfactory reason is given for its adoption by him.

2. The Goebel lamps are not shown to have had the high vacuum required for anticipation. His statement in his first affidavit that he exhausted his lamps by the Torricellian method in the years prior to 1879 must be accepted for this point, and I think it is abundantly shown, although not without some contradiction,

that such a method could not produce the vacuum necessary to prevent disintegration of the carbon; and it seems doubtful whether it could be employed at all with this delicate carbon in the receiver. If that vacuum was wanting, the claim fails.

3. No motive is shown for such constant manufacture of these lamps throughout the years from 1854 to 1880, involving so much of time and expense, and especially of great expense in maintaining the batteries for their use, and no attempt to dispose of even one, or to utilize them for domestic purposes, excepting in a few stray instances. It seems improbable that the constant practice here asserted, and so useful for the purposes of this defense, would have been kept up without clear object.

4. Why did he not apply for a patent? He was not ignorant of the patent laws, for in 1865 he is shown to have applied for a patent on a sewing-machine hammer, and in 1881 he is found applying for some minor improvements, one of them being a coil shown in his exhibit lamps.

5. The lamps which Goebel produced at Boston as original lamps, made in the early years, were four, called "Exhibits 1, 2, 3, and 4." The first three, only, were produced at the hearing with his original affidavit; the fourth being in the hands of counsel for defendants, but withheld because of doubts as to its authenticity, which doubts were afterwards cleared to their satisfaction, and this lamp then introduced by leave of court, with additional and explanatory proofs. The first three had copper and iron leading-in wires, were of what Goebel calls "fiddle-bow" or "meat-saw" pattern, and show no vacuum now, and, if fully proved, would not constitute anticipation of Edison. No. 4, called the "Hairpin" pattern, has the requisites, including a vacuum, although, probably, not the high vacuum. It is not now operative, by reason of some defect. Goebel swears that it was operated, but experts who have examined the defect swear that it has existed from its manufacture, and it could not have produced light. This lamp shows the highest excellence of the glass blowers' art, is stated by experts to be beyond the ability of any amateur, and many peculiarities are pointed out, in the perfect shape of the carbon, the glass bridge and position of leading-in wires, which seem to show adoption of methods which have been produced and developed from the experience of commercial manufacturers since Edison's invention. The statements as to its make, its keeping, or its having been operated, are not clear or convincing to the court, if they have been made so to counsel. Exhibit lamps No. 9 and 11, brought to St. Louis, are no more satisfactory than No. 4.

6. After Goebel's employment in lamp making by the American Company, his claim of anticipation received some attention, and he had negotiation with one Dreyer, in 1882, for arranging a company to exploit the claim. It failed because he was then, apparently, unable to produce an original lamp. Later, it was investigated by eminent patent lawyers at various times, and apparently with great care and interest, to employ it in defenses against this

patent, and also by one in behalf of the complainant, and all rejected it as not well founded. Prof. Thomson, of the Thomson-Houston Company, investigated it in 1882,—when it would have been of vital interest to his company to make use of it against this patent, if tenable,—and, after visiting Goebel, rejected its consideration. Dr. O. A. Moses, an inventor, with similar object, visited Goebel frequently, but came to the same conclusion, and says he was unable to produce any lamps. These are potent circumstances to raise doubt.

Coming to the new testimony produced for this hearing, and which I have carefully considered, I find that the depositions in behalf of the defendants are mostly cumulative, (or in rebuttal of certain new affidavits produced by the complainants, and not here considered,) but I cannot find that they remove any of the doubts above noted.

On the other hand, affidavits now produced by complainants tend to show an admission by defendants' witness Henry Goebel, Jr., (a son of the claimant,) that he manufactured exhibit lamps Nos. 1, 2, and 3, in 1892, for the purposes of this case. There is no denial of this, but it is claimed that this son is venal, and has deserted the defense to favor the complainants. One Hager, a glass blower, swears that he made for Goebel, while working with him, "in the early eighties," lamps similar to No. 4, and he thinks he made this one at that time. As to a planer which was produced by Goebel as made by him at an early day to cut bamboo for his carbon burners, one Korwan (who is corroborated by Hager) swears that it was actually made by him in 1883. This is contradicted as to date by an affidavit produced by defendants.

Upon the whole showing, I am satisfied that the complainants are legally entitled to preliminary injunction, and that it is the duty of the court to grant it without evasion. As stated by Judge Colt, and often held, a bond by defendant is not the equivalent of the injunction which the law gives for the protection of the inventor in the exclusive privileges promised by his patent.

The fact that the defendant company only organized and commenced manufacture of its lamps after the decisions sustaining the patent is an important consideration for this view.

Injunction will therefore issue, but with leave to defendants to move for requirement of a bond by complainants to indemnify the defendants for any damages they may suffer if it shall be finally held that the patent is invalid.

AMERICAN PATENTS CO. et al. v. DE BEER.

(Circuit Court, N. D. New York. July 21, 1893.)

No. 5,955.

1. PATENTS FOR INVENTIONS—INVENTION—BALL MACHINES.

Claim 1 of letters patent No. 216,305, issued June 10, 1879, to Samuel Brown, for a machine for making balls out of leather scraps or other