

ELECTRIC RY. CO. OF THE UNITED STATES v. JAMAICA & B. R. CO.

(Circuit Court, E. D. New York. May 3, 1894.)

1. PATENTS—ANTICIPATION—CANCELLATION—ESTOPPEL.

Complainant applied for a patent for an improvement in electric railways. He was informed by the patent office that his application showed, but did not claim, the same invention covered by a pending application; and upon its suggestion he added claims covering the same. An interference was then declared, and it was decided in his favor. It was afterwards held that these additional claims covered magneto machines, as well as dynamo machines, and that they were consequently anticipated by an existing British patent; whereupon complainant canceled them, and a patent was issued on the original claims. The canceled claims, which were made to conform to the broad construction which the patent office placed on the patent, embodied substantially the same combination as the claims which were allowed. *Held*, that their cancellation, showing his acquiescence in the holding of anticipation, did not estop complainant to insist upon his own narrower construction of the original claims as embracing only dynamo machines, in order to avoid anticipation of them, also, by the same patent that caused the rejection of the additional claims.

2. SAME—PRIOR STATE OF ART—ELECTRIC RAILWAYS.

Letters patent No. 407,188, granted July 16, 1889, to Stephen D. Field, for improvements in electric railways, claimed "the combination of a stationary dynamo-electric generator, driven by a suitable motor; a circuit of conductors composed, in part, of an insulated or detached section of the line of rails of a railroad track; a wheeled vehicle movable upon or along said insulated section of track; an electro-magnetic motor mounted upon said vehicle for propelling the same, and included in said circuit of conductors; and a circuit controlling device placed upon said vehicle." *Held* that, in view of the prior state of the art, as shown by British and French patents and the experiments of American inventors, the only improvement involved in Field's combination was the selection of a generator producing a sufficient current to operate the railway, and this did not constitute invention.

3. SAME—SUFFICIENCY OF CAVEAT.

One Stephen D. Field filed a caveat in the patent office intended to cover a proposed improvement in electric railways, which consisted substantially of a stationary dynamo-electric machine whose wires connected with rails which, together with the wheels of the vehicles which were to run thereon, served as conductors of the current to a secondary dynamo-electric machine placed on the vehicle itself, and geared to its axles. Thereafter, on July 16, 1889, letters patent No. 407,188 were issued to him for such improvement; but in the patent, instead of using the rails as conductors, and the wheels as collectors, he made use of a third rail and an additional collector. *Held* that, in view of this deviation, and of the fact that the caveat does not describe either generator or motor, it is not such a complete and exact description of the invention as will entitle the patent to priority as of the date of the caveat.

4. SAME—ASSIGNMENT—ESTOPPEL.

Pending an interference declared by the patent office between applications for patents filed by Stephen D. Field and by Thomas A. Edison, complainant corporation was formed for the purpose of developing under one management the inventions of these two parties, and both patents were assigned to it. After a time the stockholders representing the Edison interest refused to advance any more money to further the ends of the corporation; and it was finally agreed that each party should resume what it had put into the enterprise. The complainant assigned all its rights in Edison's patents to the General Electric Company, representing the Edison interest; and that company transferred to complainant all the stock received by it as its share of complainant's assets. *Held*, that this

was a mere transfer of stock in complainant corporation, and was not such a sale to it of the Field patent, or any interest therein, as would estop the General Electric Company to question the validity of such patent.

This was a suit by the Electric Railway Company of the United States against the Jamaica & Brooklyn Railroad Company for infringement of a patent.

Edmund Wetmore and E. M. Marble, for complainant.

Frederic H. Betts, H. W. Seely, and Eaton & Lewis, for defendant.

TOWNSEND, District Judge. This is a final hearing on a bill in equity alleging infringement of letters patent No. 407,188, granted July 16, 1889, to Stephen D. Field, for improvements in electric railways, and assigned to the complainant. The defenses are: Denial of infringement, anticipation by prior patents printed publications and prior inventions, insufficient description and specification, want of patentable novelty, and abandonment.

The evidence of infringement applies to the first claim only of said patent, which is as follows:

"The combination, substantially as hereinbefore set forth, of a stationary dynamo-electric generator, driven by a suitable motor; a circuit of conductors, composed in part of an insulated or detached section of the line of rails of a railroad track; a wheeled vehicle, movable upon or along said insulated section of track; an electro-magnetic motor mounted upon said vehicle for propelling the same, and included in said circuit of conductors; and a circuit-controlling device placed upon said vehicle."

It does not seem desirable at this point to review the history of the development of the use of electricity as a motive power. Such consideration of the state of the art as bears directly upon the questions decided will be presented in connection with the discussion of the elements of said claim and the defenses thereto. Except as to one of the details of construction covered by said claim, infringement is proved. The complainant admits that every element of the combination existed in the art at the date of the alleged invention, and that all had been employed in a variety of combinations. It further admits that, prior to Field's application for a patent, a printed publication, disclosing substantially the same combination, was filed in the library of the patent office; and that, prior to his practical application of his alleged invention, others had successfully operated electric railways embodying to a greater or less degree the elements of said combination. It is further admitted, or satisfactorily appears from the evidence, that, prior to Field's application, other patents had been granted, or other applications filed, which either fully described said alleged invention, or described every element except the specific circuit controller, or the particular kind of electric generator alleged to have been specifically claimed in said patent; and that practical circuit controllers were well known in the art long prior to said alleged invention. As to the generator, it is admitted that none of the improvements which resulted in the production of a machine were due in any way to the patentee, and that all he did in this respect was to select from among such well-known generators that species of

generator which was capable of doing the work he desired to do. These statements are made in this connection, not for the purpose of showing that there was no invention on the part of the patentee, but because it appears therefrom, in connection with details hereafter to be considered, that Field was in no sense a primary inventor of an electric railway. The most that can be said of his patent is that, at a time when the art pertaining to the question of the practical application of electricity to the propulsion of vehicles had reached a stage of development which suggested greater adaptability to such uses, he filed in the archives of the patent office a caveat which, it is claimed, first described a successful union of the well-known essential elements in the art of electric railways. If, in said caveat, he did thus first state a complete conception of his combination, he is clearly entitled to a patent therefor, assuming such conception to embody invention, and not to be a mere carrying forward of other conceptions resulting in an improvement in degree.

The first claim of complainant's patent contains the following elements:

"(1) A stationary dynamo-electric generator driven by a suitable motor; (2) a circuit of conductors, composed in part of an insulated or detached section of the line of rails of the railroad track; (3) a wheeled vehicle, moving upon or along said insulated section of track; (4) an electro-magnetic motor, mounted upon said vehicle, for propelling the same, and included in said circuit of conductors; and (5) a circuit-controlling device placed upon said vehicle."

The parties are in conflict as to the meaning and scope of the term "dynamo-electric generator." It does not seem material here to review the mass of expert testimony upon this question. The experts for defendant claim that in May, 1879, the date when Field filed his caveat, the term had no special significance. It was applied by some writers to all mechanical generators of electricity, including self-excited machines or separately-excited machines, machines having permanent magnets or those having artificial magnets. Other writers confined the use of the term to those machines having a core of soft iron or steel, wound with wire, and which were artificially magnetized by having a current of electricity sent through the wire, as distinguished from the original and older machines, employing a permanent or ordinary magnet. It must be admitted that the nomenclature selected by Field is unfortunate, and possibly misleading, for even the expert for complainant, in attempting to explain the term "dynamo-electric," at first gave it such a meaning as would exclude the machine used by the defendant, and relieve it from the charge of infringement. Assuming, however, that the patentee intended to designate some machine composed of electro-magnets as distinguished from permanent magnets, it appears that no details of construction are indicated, and no principle of operation suggested, whereby a person skilled in the art would be guided in the selection of such a dynamo-electric machine as would be efficient to accomplish the desired result. The language used in the claim is "a stationary dynamo-electric

generator;" the specification says "a dynamo-electric or other suitable stationary generator." It furthermore does not seem important that the patentee is claimed to have been the first to observe the capacity of dynamo-electric machines to automatically regulate themselves for changes in currents, because such self-regulating capacity is not peculiar to dynamo-electric generators, but may be possessed by any generator; because such capacity in dynamo-electric machines was known to electricians before the application for this patent was filed; because the specifications fail to indicate that the patentee had any idea of such capacity; because his alleged prior observations and experiments in this line were not applied to the running of a railway; because it appears that Thomas A. Edison was the first to apply a machine possessing such capacity to the running of an electric railway; and, finally, because complainant's expert admits that said earlier observations and experiments of the patentee in San Francisco did not mark any important advance in the art, or show any material difference between the arrangement of his machines and that of prior ones for similar purposes, and that the greater transmission of power was primarily due to his having larger machines. The facts stated in this connection will hereafter be referred to in connection with other matters, as bearing upon the question whether the patentee contributed anything to the art of electric railway propulsion, or by his statement so taught the world how such alleged conception could be utilized as to entitle him to claim the exclusive right to such conception. They seem to show that the only reason why a dynamo-electric generator was suggested was because it was well known that the permanent magnet could not be made to generate as much force as the artificial magnet. In other words, the use of this term by the patentee merely served to suggest that by a selection from a certain class of well-known machines a greater power would be obtained than had been obtained from the machines theretofore used.

Before proceeding to the consideration of the general claim of anticipation, it seems desirable to review the history in the patent office of said patent, especially as to its bearing upon the fifth element of the combination claimed,—the circuit controller. On May 21, 1879, said Field filed in the patent office a caveat, the substantial portions of which are as follows:

"I propose to propel cars along tracks by means of electricity in substantially the following manner, referring to the accompanying drawings: I will station a dynamo-electric machine, A, at some convenient point along the track, and connect the positive and negative wires, b, c, of the machine with two rails, so that the rails will serve as conductors. All the wheels, d, e, on one side of the car, I will insulate from their axles. On board of the car I will place a secondary dynamo-electric machine, f, and gear it to one or both of the axles of the car. Now, if a current be sent from the primary dynamo-electric machine at the central station along the rails or along a supplemental conductor attached to the rails, the secondary machine on board the car will be actuated, and its power transmitted to the axles of the car for propelling it along the track. By using a suitable current reverser on the car, the direction of the current can be changed at will, so as to run the car in either direction."

"Having thus described my invention, as far as at present completed, what I claim and desire to secure by caveat is the above-described or similar method of propelling cars on tracks."

On March 10, 1880, Field filed an application for the patent in suit. In the specification he states that "an electro-magnetic motor of any well-known and suitable construction is mounted upon the said car," and that the necessary electric power to operate said motor is to be supplied by "a dynamo-electric or other suitable stationary generator of electricity." The first claim includes the stationary dynamo-electric generator in express terms. This claim was rejected upon citation of anticipations by an English patent to Bellet & De Rouvre. Thereupon counsel for Field attempted to distinguish the English patent on the single ground that it did not call for the insulated section of track covered by Field's first claim. The rejection being still insisted on, said claim was amended by the addition of "a circuit-controlling device, placed upon said vehicle," and was again rejected on said reference; and afterwards, on further references, on the ground that, "if the reference is sufficiently explicit to enable one skilled in the art to construct the devices entire, there would be no invention in putting a circuit breaker on the engine." After reconsideration, appeal, allowance, amendments, and notice of interference, on July 21, 1881, a specification, practically the same as that of the patent in suit, was filed, having five claims, the first being the same as that now in suit. The fourth and fifth claims were inserted July 21, 1881, upon the suggestion of the patent office that the application showed, but did not claim, an invention shown and claimed in another pending application; and the statement that, if such amended claims should be filed by Field, he would be made a party to an interference with said other applicant. Said claims were as follows:

"(4) The combination, substantially as hereinbefore set forth, of a railway track, one or more stationary dynamo-electric generators; electrical conductors extending from said generator or generators along the line of said track, and consisting wholly or in part of the rails thereof; vehicles movable along said track; electro-dynamo motors fixed upon said vehicles for imparting motion thereto; and wheels supporting said vehicles upon the track, and also serving to maintain continuous electrical connection between said generator and motors. (5) The combination, substantially as hereinbefore set forth, of one or more stationary dynamo-electric generators; one or more prime motors for driving the same; a conducting circuit, formed wholly or in part of insulated lines of rails of a railway track; a wheeled vehicle movable upon or along said lines of rails; one or more electro-dynamic motors for impelling said vehicle, one pole of said motor or motors being electrically connected with the stationary generator through one line of conductors, and the other with the line of conductors, for completing an electric current between the stationary generator."

Thereupon an interference was declared between Ernest W. Siemens, Thomas A. Edison, and said Field upon the question of priority of invention as to the subject-matter of the fourth and fifth claims, which was decided in favor of Field. In 1886, another interference was declared between Field, said Siemens, and George F. Green upon the priority of invention as to the subject-matter of said first claim, and this also was decided in favor of Field. But

in the said decision of the commissioner of patents he stated that he was impressed with the similarity between the invention claimed by Field and that set forth in a British patent to Clark, No. 1,386, and had, therefore, directed "the case of Field to be returned to the primary examiner, who will consider whether the invention covered therein is patentable in view of Clark's patent, taken in connection with the other state of the art." He subsequently stated that he had referred the application to a special committee, to advise him "whether the Clark patent was an anticipation of the Field application, or of any part thereof, without reference to the condition of the state of the art generally;" and that, as a result of the report of said committee, and of his examination of the Clark patent with the aid of said report, he found that the first three claims of Field's application were not anticipated thereby, while the fourth and fifth claims were anticipated thereby. He then added:

"I therefore remand Field's application to the primary examiner, with instructions to reject claims 4 and 5 therein, and thereby enable Field to take such steps as he may see proper, either to appeal, amend, or cancel."

Thereupon, on April 1, 1889, counsel for Field canceled said fourth and fifth claims.

Defendant contends that said claims cover practically the same combination as the first claim, except that they do not contain the "insulated section of track" or the "circuit-controlling device." It is not material here to consider the question of the track section. And defendant argues that the patentee, having acquiesced in the action of the patent office, and erased said claims as anticipated by Clark, cannot now contend that the same elements in the first claim are not so anticipated. Complainant claims that, although the other elements of the combination covered by the first claim are contained in the fourth and fifth claims, the broad construction put by the patent office upon said claims so as to embrace a magneto-machine, the structure contained in the Clark patent, and to therefore reject said claims, does not prevent the patentee, after having acquiesced in said rejection, to claim a narrower construction as to the first claim, covering only a dynamo machine. Complainant, for this reason, and because said fourth and fifth claims were inserted at the request of the patent office in order to raise an interference, denies that the patentee is estopped to claim a construction of the first claim, justified in view of the state of the art, but different from the construction put upon the claims which have been erased. It is admitted that such construction could not have been claimed if said claims had not been erased. The first claim of the patent in suit, as it now stands, had been allowed when, on July 12, 1881, the patent office notified the patentee, as already stated, that his application showed, but did not claim, a certain invention claimed in a pending application, and that, if he should insert such claims, he would be made a party to an interference, but not otherwise. Thereupon, for the single purpose of contesting the question of priority involved in said interference, claims 4 and 5 were added. As already stated, Field prevailed as to priority, but was afterwards defeated as to patentable

novelty, in view of the Clark patent, on said fourth and fifth claims. Whatever effect these acts, or the original claim of counsel before the patent office, upon the rejection of a similar claim or citation of the Bellet & De Rouvre patent, that said claim differed from the anticipation in calling for an insulated section of track, may have, as showing the construction placed by the patentee upon the character or scope of his alleged invention, it does not seem that these acts alone should estop the inventor from claiming such construction of said first claim as would otherwise be warranted in view of his specification and of the state of the art. The patentee, having exercised his right to erase these claims, and being estopped thereby to claim such advantages of construction as he might otherwise have asserted thereunder, cannot be also estopped to assert other and independent rights claimed to exist under said first claim, which was not in issue in said interference. The declaration of an interference by the patent office merely raises a question of priority, not patentability. The patent office virtually said: "The question of patentability is already decided in your favor as to claims 1, 2, and 3. The question of priority is also settled in your favor as to what you claim, but not as to what you may claim under our construction of your specification." While these fourth and fifth claims stood for the purposes of the interference, the party may have been estopped to claim a broad construction of the same thing in one claim, and a narrow construction in another. But I do not understand that, by such acquiescence for the purposes of an interference, the party is deprived of the right to stand on his original construction of his former claim, after the interference has terminated, and the claims involved therein have been erased. *Christie v. Seybold*, 5 C. C. A. 35, 55 Fed. 69.

The evidence and brief of defendant present an elaborate and forcible discussion of the history of the development of the art of electrical propulsion, from Jacobi's boat, in 1838, down to and including the complete practical working railways of Siemens in 1879, Edison in 1880, and Field in 1881. This evidence is introduced chiefly on the following grounds, namely: It being admitted that Field neither invented nor modified a single element of his combination, but it being claimed that he first selected an efficient generator and motor, and first added an efficient circuit controller, defendant claims that the state of the art shows either that such generators and motors are so disclosed in the earlier patents and publications as to negative the claim of novelty, or that such generators and motors are so analogous as to negative invention, or that other patents, publications, and completed working inventions, completely anticipate the actual invention of Field. In this latter connection, the construction of the caveat and its legal effect will be considered. British patent No. 8,644, granted to Henry Pinkus in 1840, describes an apparatus for propelling railway carriages by electro-magnetic, voltaic, frictional, or other source of electrical motive power. It was also provided with a device for stopping, starting, and reversing the locomotive. Its bearing upon the question of anticipation will be discussed in connection with other patents. The expert for com-

plainant shows that in the then state of the art no generator of electricity was known which would yield a sufficient current for the practical operation of this apparatus for the propulsion of railway carriages. But he admits that the electrical machine which Pinkus proposed to use was an operative one to a limited extent, and that the Pinkus patent contains the combination of all the elements of the first claim of the patent in suit, including a circuit controller, except the dynamo-electric generator. It is to be noted that, while Pinkus specifically refers to certain generators of electricity, he does not confine himself to these, but leaves the selection of the best form to be determined, in view of the state of the art. British patent No. 514, granted to H. W. Cook, in 1862, for an apparatus for propelling carriages by means of electricity, appears to be an impracticable device. The contrary is not shown as to the British patent to Bellet & De Rouvre, described in *Les Mondes*. They, however, show a circuit controller, and the same other elements in combination, as in the patent in suit. The criticisms of complainant's expert are substantially the same as were made of the Pinkus patent. The Dugmore & Millward, Guyard, and Wesson patents are only important as showing what is practically admitted,—that at the date of the Cook patent methods for connecting stationary sources of electricity with moving vehicles were well known in the art. British patent No. 1,386, granted to William Clark, in 1864, for electro-magnetic apparatus, and its application as a stationary or locomotive driving power, is an important one in this connection. It will be remembered that the patent office decided that this patent fully anticipated all the features of the fourth and fifth claims, and of the first claim and the combination covered thereby, except the circuit controller, and that the fourth and fifth claims, which, for the purposes of the present inquiry, may be considered substantially the same as the first except as to such controller, were thereupon erased. This Clark patent described an improvement upon previous generators of electricity capable of use as a stationary means of power or on a locomotive. He described a dynamo-electric machine, in this sense: that it was one in which the electric current was produced by the rotation of a coil of wire in proximity to a magnet. It is, perhaps, only necessary to say as to this patent that the claim of defendant, and the decision of the patent office that it anticipated Field, are supported by the testimony of complainant's expert, who admits that Clark described the same thing as is described in the first claim of the patent in suit, minus the circuit controller. The explanation by counsel for complainant of this admission by their expert, Pope, that the Clark invention was the equivalent of the Field invention minus the circuit controllers, is that Pope meant it was the equivalent, upon the broad construction of the patent office which made the Field patent include any kind of dynamo-electric generator,—that is, any kind of generator except one operated by permanent magnets. Counsel for complainant further shows that Pope claims that the motor of the Clark patent is utterly inadequate to perform the work of the motor of the Field patent. There is considerable expert testimony to the effect that the patent office was mistaken in

its finding that the Clark patent did not contain a circuit controller, and that a certain key shown in the drawings was capable of operation as such. This point does not seem to be material, and the presence of such controller is not proved.

The French republic, on September 17, 1878, granted to Francois Alexander Boue, and on December 18, 1878, to Jean Chretien, patents for electrical apparatus for the propulsion of vehicles on rails or canals and rivers. Complainant contends that the Boue patent does not anticipate Field, because—First, Boue described a magneto as distinguished from an electro-magnet machine; second, he used a ground circuit; third, he does not distinctly state that his current reverser is on the car. As to the first claim, complainant's expert repeatedly refutes it by his direct testimony that Boue by the term "magneto-electrique" meant to describe, and did describe, "dynamo-electric" generators, that the generator and motor proposed by Boue are of the same character as those of the patent in suit, and that both the Boue and Chretien patents contain Field's motor and generator. If, as is suggested, Mr. Pope was misled in one instance where the term was mistranslated,—a suggestion which seems most improbable in regard to perhaps the most important patent in the case, and he has not been recalled to say so,—the court must accept his statement as it stands, supported by the evidence of the experts for defendant. Furthermore, there is no suggestion that Pope was misled by any mistranslation of the term "magneto-electrique" in the Chretien patent, and he testifies that it describes a "dynamo-electric generator." But, even if Boue merely described a permanent magnet machine, Mr. Pope admits that the results recorded in said patent justify Boue's assumption that his apparatus would be capable of propelling, upon a railway track, a vehicle of sufficient size to be of actual commercial value. The third claim is sustained by the evidence. Boue suggests how to stop the carriage, or to cause it to go backwards, but does not state how a circuit controller is to be constructed, or where located. That Boue used a ground circuit, and his contrivance was therefore impracticable, is refuted by undisputed evidence of practical operation of railroads in this country, where the ground only is depended on. Counsel for complainant has corrected said claim, and Pope admits that it would not necessarily involve invention to substitute a rail circuit for an earth circuit. Mr. Pope's criticism that the rails are not bonded in Boue's patent is immaterial, inasmuch as it is admitted that bonding of rails is old in the art, and is not essential to successful operation. That Boue connects his motor with the wheels of the car by gear wheels instead of a belt, which would be better, in Mr. Pope's opinion, is immaterial; for Field states in his specification that in practice he prefers to make use of such gear wheels; because the substitution of one for the other would not involve invention, in view of the art; because there is no evidence that defendant uses a belt; and, if gear wheels are excluded from the Field patent, it does not appear that defendant has infringed. Mr. Pope further says that he sees no reason why the traveling contact which Boue describes should not perform its in-

tended function satisfactorily. The objection that the Chretien patent only describes a magneto-electric machine has been already disposed of. The only other criticism applied distinctly to it by complainant is that, while it describes a circuit controller on the car, which will stop or start it, or vary its speed, no provision is made for reversing the motion of the car.

Much space has been devoted by defendant to an account of the experiments of George F. Green, of Kalamazoo, Mich. He claims to have begun to experiment with small electric motors and cars as early as 1856, and to have been constantly engaged in such experiments until 1875, when he built an electric railway, with a track more than 200 feet long, and on which he ran a car loaded with about a hundred pounds of weight by means of a battery connected with the car and rails, in the same way as was afterwards described by Chretien and Field. The car was provided with a circuit controller, which both stopped and reversed the motion of the car. Afterwards, in 1879, he constructed and ran a car carrying four persons, and provided with a circuit controller. On August 19, 1879, he filed an application for a patent, and, after various vicissitudes, not necessary to be here considered, he, in 1891, obtained a patent for a stationary source of electricity, combined with a line of conductors extending to and from the car, including the rails, and energizing an electric motor on the car. The chief objection to Green's apparatus is that it was not operated by a dynamo-electric machine, but always by a battery, as the generator of electricity, although, in his application for a patent, he stated that any known and suitable source of electricity might be employed. It is further claimed that Green merely embodied his invention in a model, prior to the date of the invention of Field. On October 9, 1879, there was received at the patent-office library at Washington, a German periodical, containing a full description, with illustrations, of an electro-dynamic locomotive and train, operated on and after May 28, 1879, in the Industrial Exhibition at Berlin, known as the "Siemens Electrical Railway." It is unnecessary to explain the construction of this railway, as it is admitted that said publication disclosed the same, or substantially the same, system or combination as is set forth in the first claim of the patent in suit, and that said railway was both practicable and successful. Several witnesses testify that, as early as May 18, 1879, Thomas A. Edison made sketches and working drawings showing the necessary details for the construction of an electric locomotive with a stationary dynamo-electric generator, and a circuit controller on the car. This was followed, in the spring of 1880, by the construction of a railway which was successfully operated for some months.

This general review of the state of the art has not included a discussion of the differences in details of construction which distinguish the alleged anticipations, nor of the various kinds of circuit controllers or generators of electricity, because, after a careful examination of these details, it has seemed that a comparison between them is not material in view of the conclusions reached. It appears that at least as far back as 1864 the general idea of a sys-

tem of electrical propulsion comprising a stationary generator of electricity, a circuit of conductors, a motor on said vehicle, and a switch, or circuit controller, was well understood in the art. This is shown by the Pinkus, Cook, Clark, and other patents already considered. With the exception of the experiments of Green, there is no evidence of any material advance in the art of electrical railway propulsion after 1864 until about 1878. The reason for this condition of affairs is to be found in the fact that, while the principle was well understood, and its operative application demonstrated, no means had been discovered whereby the power produced by the steam engine or other source of power could be economically converted into electrical power. Consequently it was commercially cheaper to use the whole of such power directly, rather than the comparatively small percentage indirectly received through the medium of electricity. But it is agreed that the invention of what is known as the "Gramme armature," and its development between 1873 and 1878, obviated the difficulties previously experienced, and gave a new impulse to the electrical transmission of power. It is unnecessary to explain its structure or mode of operation further than that it was a type of dynamo-electric machine capable of use as a generator or motor, and producing a uniform and constant current of electricity. The efficiency of these generators was greatly increased, about 1878, by a construction wherein the coils of the armature were made of large wire of low resistance. A new impulse was thereby given to the system of electrical transmission. Thereupon Boue, Chretien, Field, Siemens, and Edison entered the field, each claiming to be the inventor of a combination whereby the electric railway might be made commercially practicable. Boue and Chretien anticipated the earliest date claimed for Field's conception of his invention.

Let us now inquire what is claimed or shown on behalf of Field's claim, first as to patentable novelty, and later as to priority. Perhaps all the evidence that is necessarily material to the determination of these questions may be found in the admissions of counsel for complainant, or of their expert, or in the statements of the patentee himself. Counsel admits, as already stated, that Field was not the inventor of a single element of the combination claimed by him. Every element thereof, singly and in various combinations, existed, and was well known in the art. He did not invent any improvement in electrical apparatus, unless he may be said to have invented the combination claimed. On this point, Mr. Pope testifies as follows:

"288 X-Q. None of the improvements in electro-magnetic or magneto-electric or dynamo-electric generators of electricity made between 1840 and 1880, and the result of which was to produce a machine capable of use on an electric railway, were due in any way to Mr. Field, were they? A. Not that I am aware of."

Let us now inquire what Field did. As to the generator, I quote from the cross-examination of Pope, the expert, when referring to the Pinkus patent:

"The improvement made by Mr. Field in this particular I understand to have been the selection from among the generators in existence at that date of a species of generator which was capable of doing the work he desired to do, and which had been brought into existence by the efforts of other inventors and improvers since the date of Pinkus' patent. 290 X-Q. Then, in that respect, he did precisely what had been described in the French patent of Boue, the French patent of Chretien, and the Organ for the Fortschritte, didn't he? A. So far as regards that one element of the combination, without referring to anything else, that is what he did. 291 X-Q. But that and the motor are the only elements in which you find Field to differ from Pinkus and Cook, are they not? A. Yes; I think I have already said that. 292 X-Q. And the Boue and Chretien French patents and the Organ for the Fortschritte all contain Field's motor as well as his generator? A. Yes." "37 X-Q. Do you find from the testimony in this case that there is any material difference in Field's arrangement of his machines over the way in which such machines had before been arranged for similar purposes? A. No."

It is further shown by Pope that at the date of Field's application there were some dynamo-electric machines which had a comparatively high resistance, and were therefore unsuitable for the purposes contemplated, while others of lower internal resistance would be suitable. He was then asked:

"187 X-Q. Then you consider the direction in the patent to use a 'dynamo-electric machine' as a direction to use one of low internal resistance in its armature, do you? A. The patent does not specifically direct the constructor to do this. It merely directs him to take a 'dynamo-electric machine,' and among these machines were at that date to be found those of different resistances, more or less suitable for the purpose. The patent does not tell him to select one of the lowest resistance he can find, but the general knowledge of the art at that date was undoubtedly quite sufficient to teach him to do this."

Mr. Pope further says:

"The specification of the patent in suit does not state specifically what kind of a dynamo-electric generator is to be used. * * * The generator shown in figure 5 of the drawings, and referred to by the letter G, is merely a typical, conventional, or diagrammatical representation of a generator, and obviously is not intended to represent any particular variety of dynamo-electric machine."

As to the scope of the circuit-controlling device claimed by the patentee, Mr. Pope was asked:

"157 X-Q. You understand that the circuit-controlling device contemplated by the first claim of the patent in suit is any device by which the motor can be started and stopped, do you not? A. Yes. 158 X-Q. You don't confine it to a device which is useful also to reverse the direction of rotation of the motor, do you? A. No; I do not think that it necessarily includes a reversing device, although in practice it would usually do so."

It will be remembered that practically the only thing in the first claim which the patent office found not anticipated was the circuit-controlling device. Irrespective of the alleged admissions of the patentee by reason of his action in the patent office, Mr. Pope's testimony is as follows:

"310 X-Q. If you added a circuit controller to the Clark patent, supposing again that it was not there already, you will have the same combination as is set forth in the first claim of the patent in suit, except that, as you understand the claim, Field has substituted the generator and motor of Boue, Chretien, and Siemens for those of Clark? A. It would amount to that substantially. 311 X-Q. Does it not amount to that exactly? A. Certainly.

If you substitute for Clark's magneto machine a suitable dynamo, for his inoperative motor a suitable operative motor, and apply to the motor a proper circuit controller for starting and stopping it, then you have the elements set out in the first claim of the patent. 312 X-Q. Have you any objection to giving a direct answer to the question as it was put? A. I see no objection to giving a direct answer. My answer is, 'Yes.'"

As to whether the addition of such a device as Mr. Pope has described above would involve invention, Mr. Pope was asked:

"307 X-Q. In your opinion, would the addition of a circuit controller to Clark's apparatus, assuming that it has not one already, be an act of invention? A. I do not see why it might not be. 308 X-Q. You think so, in spite of the fact that the Pinkus patent and the Cook patent are provided with circuit controllers for the same purpose? A. It is probable that the mere idea of placing a circuit controller upon the Clark motor would exhibit little or no invention, in view of the fact that circuit controllers had been employed by Pinkus and by Cook. But the application of a circuit controller to the particular apparatus of Clark in such a way as to enable the desired control to be exercised might involve some adaptation or change in the construction or arrangement of the circuit controller, which might involve some degree of invention. 309 X-Q. But simply putting a switch on the car to open and close the circuit would not, in your opinion, involve the making of an invention, would it? A. In view of the state of the art, I think it doubtful."

The attempt, on rebuttal, to show that there was some peculiarity in the Field motor on the car, is defeated by Pope's own testimony in chief and his admissions on cross-examination. This claim was not pressed in complainant's final argument. I do not deem it material.

These declarations of counsel and expert, in the light of the history of the art, and in view of the impulse given to it by electrical inventors prior to Field's alleged invention, show, assuming Field to anticipate the Siemens publications, that the answer to the claim of anticipations by these prior patents is that the generators therein described differ from that of the patent in suit, and are not sufficient for the purposes for which they were intended, or that certain of said patents do not describe a circuit controller on the car. This second point may, it seems, be dismissed without further consideration, either because certain of said patents do describe more efficient circuit controllers than Field described, because it would not necessarily require invention to merely shift the location of a reverser from the stationary source of power to the car; or because of the lack of patentable novelty in adding a Field circuit controller to said devices, as admitted by Mr. Pope. *Briggs v. Ice Co.*, 60 Fed. 87, 89.

Let us now inquire what is the generator of the patent in suit. Field has nowhere described it. He has not even limited himself by the general term "dynamo-electric." His specification states that the generator is "a dynamo-electric or other suitable stationary generator of electricity." Under this term may fairly be included, as was done by the patent office, the generators of Clark or of Pinkus. In fact, Mr. Pope, in the interference proceedings, testified as follows, concerning the Field patent:

"The specification says: 'An electro-magnetic motor, K, of any well-known and suitable construction, is mounted upon the said car.' The motor shown

differs in no respect from the ordinary dynamo-electric machine, which was perfectly well known at that date, and which makes a very useful and effective form of motor; but many forms of the motor were known, any one of which would fall within the description of an electro-magnetic motor, which, as I have said, I understand to include any motor operated by electro-magnetism."

It has already been shown by the admissions of Pope that Field did not indicate any particular variety of dynamo-electric machine, but that the selection of a suitable one would occur to any person skilled in the art. If this be so, it would seem to negative any claim by Field that he had contributed anything to the art by such suggestion, or that he had himself made any invention by such substitution.

This case has thus far been discussed upon the assumption that the patentee sufficiently disclosed his alleged invention, and that it constituted a practical, successful combination. The questions raised have been considered only in the light of the evidence furnished by the complainant. But, if the evidence of the experts introduced by the defendant be considered, it will be found that they not only confirm the defenses which have seemed to me sustained by the admitted facts, but that they add other defenses which deserve consideration. Thus they charge that the patent in suit is so defective by reason of its failure to state essential details of construction, and its statements of defective and impracticable details of construction, that the apparatus, as shown, would be incapable of successful operation; and in this charge they are supported by the evidence of Mr. Pope, who admits that the apparatus, as shown and described, seems to be inoperative. The patentee never constructed a railway in accordance with the description contained in his patent, and there is no evidence that any commercial railway was ever so constructed. They further claim that none of the obstacles encountered in the practical operation of railways were overcome by anything described by the patentee, but all by the inventions of others, and that the success of the Field railway was due to the departure in construction from the description in the specification, and the adoption of the ideas embodied in said other inventions. They further testify that the Boue patent shows and describes, in combination, everything set forth in said first claim, and that defendant's railway more nearly resembles the railway of Boue than that of the patent in suit. It is not necessary to the decision of this case to sustain these and other similar claims asserted by defendant. But, in connection with the Field caveat, to be hereafter considered, they are relevant to the question whether, if invention was required to effect a practical operative combination, the patentee was the one who first conceived the ideas essential to the accomplishment of the successful result. They also support the contention that the description of the invention is so vague and indefinite as to be insufficient to enable those skilled in the art to construct it, without experiment, so as to attain the desired result. *Howard v. Stove Works*, 150 U. S. 164, 14 Sup. Ct. 68.

The reference to a generator in the application for a patent does

not define any particular kind of generator, or add anything to what was already known in the art. It may be applied to the generators of Pinkus and Clark, or to that of Boue, or of Chretien, or to any other electrically energized generator. But the most conclusive answer to the whole argument of complainant seems to be that, upon the admitted facts, there was no invention in the substitution of a later type of generators for the earlier types of generators. This question will be further considered later. And, finally, if there could be any invention in such substitution, and it was fully disclosed in the patent in suit, then it had already been disclosed by the patents to Boue and Chretien. But it is said that all the other devices were impracticable, and that Field's combination presented the first practical solution of the problem of electrical railway operation, and therefore must have involved invention. It further appears that the first embodiment of said alleged invention, in 1881, was entirely successful in operation, and that the second embodiment, in 1883, proved to be a complete commercial success; and it does not appear that the railroads of Boue and Chretien were ever put in practical operation. In this connection will be considered the railway of Siemens, which was successfully run in 1879, and of Edison, which commenced to operate in 1880. This argument, based upon the admitted practical success of the apparatus of the patent in suit, is most forcibly presented by counsel for complainant. The importance of the electrical railway, its extensive adoption throughout this country, and the fact that all these railroads use substantially the system covered by the claim in suit, show that the question of priority as to this subject is of the greatest moment to the parties whose interests are involved in this litigation, and impose a grave responsibility upon the court in its disposition of the case. "Under such circumstances, courts have not been reluctant to sustain a patent to the man who has taken the final step which has turned a failure into success." Mr. Justice Brown, in the *Barbed-Wire Cases*, 143 U. S., at 282, 12 Sup. Ct. 443, 450; *Loom Co. v. Higgins*, 105 U. S. 580; *Consolidated Safety Valve Co. v. Crosby, etc., Co.*, 113 U. S. 157, 5 Sup. Ct. 513; *Manufacturing Co. v. Adams*, 151 U. S. 139, 14 Sup. Ct. 295. For the purposes of this inquiry it will be assumed that the patentee was the first to describe a conception of a successful, practical electric railway. Upon this assumption the following considerations are presented:

The objection is taken to the prior patents that they are for mere paper machines, not capable of successful practical operation. But where, as in this case, the objections only relate to details of construction, not affecting the substance of the invention, such patents are not rendered inefficient as defenses by such alleged imperfections. *Pickering v. McCullough*, 104 U. S. 310, 319. It is a significant fact, upon the questions of pioneership and success, that Boue and Chretien, in 1878, Field and Siemens, in 1879, and Edison, in 1880, all described or constructed electric railways upon principles substantially the same, and that these principles did not materially differ from those described by earlier inventors, and

well known in the art, except in the substitution of the new and more efficient types of generators, and that such measure of success as these alleged inventors achieved was confessedly chiefly due to the increased efficiency of said generators. Assuming the utility of said improved appliances, it may be questioned whether, so far as the element of invention is concerned, they show anything more than such an application of these new generators to new purposes as would have occurred to any person skilled in the art, as it did occur apparently almost simultaneously to the said five persons. That it marked an advance in the art, of incalculable value, cannot be denied; but it is at least a question whether the chief credit for such advance should not be given to the inventor of the generators whereby these results became possible, rather than to those who adapted these new generators to new but analogous uses. Given the perfected Gramme generator and the prior art, and the successful electrical railway is a necessary result. And, if the first person who happened to suggest the combination is entitled to a patent therefor, it must be because such suggestion involved invention. It does not seem that the mere prior statement of such necessary development of the art should be allowed to encircle the brow of an alleged inventor with the laurels of a pioneer, or that the conceded success of such a combination should be allowed to obscure the causes contributing to such success. The decisions of the court, sustaining patents on the ground of successful results, have been rendered in cases where the need had been long apparent, and various persons had vainly sought to accomplish the desired result.

A consideration of this whole case raises these questions: Did this patentee invent anything? Did he discover any new and useful improvement? Did his combination show any new arrangement of the well-known elements? All these questions the counsel and expert for complainant have already answered in the negative. They have failed to show any evidence of invention except a successful result, achieved by the patentee and others as soon as the necessary appliances became available. Upon the whole case presented I am forced to the conclusion that the patentee was not the inventor of the combination covered by the first claim.

But, further, defendant strenuously claims that Field's patent is anticipated by the Siemens publications, which were filed in the patent office October 9, 1879. Field filed his caveat May 21, 1879, and his application for the patent in suit March 10, 1880. It is claimed that the caveat discloses the invention, and that the patent, therefore, relates back to May 21, 1879. Let us again examine the language of said caveat:

"I will station a dynamo-electric machine, A, at some convenient point along the track, and connect the positive and negative wires, b, c, of the machine with two rails, so that the rails will serve as conductors. All the wheels, d, e, on one side of the car, I will insulate from their axles. On board the car I will place a secondary dynamo-electric machine, f, and gear it to one or both of the axles of the car. Now, if a current be sent from the primary dynamo-electric machine at the central station along the rails, or

along a supplemental conductor attached to the rails, the secondary machine on board the car will be actuated, and its power transmitted to the axles of the car for propelling it along the track."

"By using a suitable current reverser on the car, the direction of the current can be changed at will, so as to run the car in either direction."

The patent office has held that "the caveat clearly describes the matter in controversy." It will be noticed that no details are here given by which one skilled in the art could be assisted in the selection of generator or motor, or the construction of a current controller or reverser. No current reverser is described, although that is the only thing which the patent office held to distinguish the claim from the prior art. In this connection the following citation from Mr. Pope's testimony will be found material:

"358 X-Q. Would it, in your opinion, in 1878, have involved ingenuity or skill amounting to invention to add to the apparatus shown or described in the Boue patent—assuming that it does not already exist there—a circuit making and breaking switch on the vehicle for starting and stopping the vehicle? A. There might not have been invention in the mere conception of doing this, taking into consideration what had been described and shown in some of the prior patents in evidence in this case, but the particular construction and adaptation of the circuit-controlling device to the particular machinery used then for carrying out the particular object in view might have involved invention. 359 X-Q. Do you mean that it might involve invention to make a special form of circuit controller; such, for instance, as is shown and described in the patent in suit? A. Yes."

In using the car rails alone to form the circuit by means of the car wheels as collectors, the caveat substantially differs from the system described in the patent, and adopted by the patentee in practice. Both in the patent and in his experiments the patentee adopted for his circuit the system described in the Siemens publications, of a third rail and an additional current collector; so that if these details, in which his construction differs from that of Chretien, are essential, they are anticipated by the Siemens publications. The caveat does not set forth a single characteristic which distinguishes the combination from the Chretien patent. Section 4902, Rev. St. U. S., provides that:

"Any citizen of the United States who makes any new invention or discovery, and desires further time to mature the same, may * * * file in the patent office a caveat setting forth the design thereof, and of its distinguishing characteristics, and praying protection of his right until he shall have matured his invention."

Its purpose is to secure an opportunity to have questions of priority between rival inventors determined before the issue of a patent. The same particularity of description is not required as in an application for a patent, but it must be as complete and exact as the inventor is able to give, and sufficiently precise to enable the examiners to determine whether an invention described in a subsequent application is probably the same. Rob. Pat. § 441. The conclusion reached seems to dispense with the necessity of considering the cases cited by counsel as to the effect of the filing of this caveat upon the question of priority of invention. The general rule is well settled that, as between rival inventors, one having conceived an invention, and using due diligence in adapting or perfecting it, may

lay the foundation of a claim to priority by a sufficient model or drawing, and thus become entitled to claim the date of the original conception, thus shown, as the date of his invention. *Loom Co. v. Higgins*, 105 U. S. 580. See, also, *Clark Thread Co. v. Willimantic Linen Co.*, 140 U. S. 481, 11 Sup. Ct. 846. And for the purposes of the question presented in this case the claim of complainant may be assumed to be correct,—that such prior conceiver, under such circumstances, will prevail over a later conceiver, who first gave to the world the complete embodiment of the invention. The question here is whether this caveat, which purported to describe Field's invention "so far as at present completed," is such a sufficient exhibition of his alleged invention, such a clothing of the conception in substantial form, such evidence that an invention was then actually made, as to be entitled to take precedence of the Siemens publication. Irrespective of the claim that the details subsequently set forth were borrowed from other inventors, the fact that Field found it necessary to the practical operation of his railway to depart from the construction originally claimed suggests that the patent, and, a fortiori, the caveat, did not present such a complete embodiment of the conception as would be sufficient to anticipate the one who had first constructed a working apparatus. *Christie v. Seybold*, 5 C. C. A. 33, 55 Fed. 69, and cases cited; *Manufacturing Co. v. Renchard*, 9 Fed. 293, 297, opinion by Mr. Justice Matthews. If it were necessary to the decision of this case, I should feel obliged to decide the question as to the sufficiency of the caveat in the negative, upon the authority of the above cases. The question of priority and reduction to practice is fully discussed, and the law applicable thereto is aptly and exhaustively stated, by Judge Taft in *Christie v. Seybold*, supra.

There are several other matters discussed in the elaborate presentation of this case, which, in view of the conclusions reached, it has not seemed necessary further to consider.

The argument that the first claim of the patent in suit is limited to a railway operated in detached sections is supported by the statement of counsel for complainant in attempting to get rid of anticipations in the patent office; by the opinion of Benjamin F. Thurston, to whom the construction of the patent was referred; and by the opinion of the United States supreme court in *Electric Railroad Signal Co. v. Hall Railway Signal Co.*, 114 U. S. 87, 5 Sup. Ct. 1069. Some phases of the history of the patent in suit in the patent office have not been fully discussed, because the evidence upon the questions involved has received independent consideration, so far as it seemed pertinent to the decision of this case.

Let the test of the patent law be applied to the facts, and let it be assumed that the problem of a commercially successful electric railway was presented for solution on May 29, 1879, to one skilled in the art. He has before him the operative railway of Green, whose only defect was its voltaic battery as a generator; the patent of Clark, covering a complete device; the patent of Pinkus, describing an apparatus confessedly not inoperative, the patents of Boue and Chretien, not shown to be inoperative, and a model constructed substantially in

accordance with which was successfully operated at the hearing. Can it be doubted, when it is manifest that the only difficulty in the way of success is one, not of operation, but of economic transmission of power, that it would have occurred to him, either to take one of the newly-invented generators, the characteristic feature of which was known to be greater efficiency by reason of the economical transmission of power, and to have substituted it for the battery of Green, or the antiquated generators of Cook and others, or to have done what, so far as the caveat shows, is all that Field did, to have taken Chretien's device as the statement of a successful invention, and, proceeding with that as the underlying invention, to have subsequently perfected its details, either on the lines already marked out by Chretien or upon different lines, such as are shown by Siemens? That in so doing what Field did he would not have invented any new device in, or arrangement of, the elements of the combination, is admitted as matter of fact. That such mere carrying forward, or new or more extended application of the original thought, or substitution of something better or more efficient, causing an improvement in degree only, does not constitute invention, is established as a matter of law. The rule applied to such cases is stated in *Robinson on Patents* (section 78, 237), and is supported by the following, among other, decisions: *Smith v. Nichols*, 21 Wall. 112; *Atlantic Works v. Brady*, 107 U. S. 192, 2 Sup. Ct. 225; *Hollister v. Manufacturing Co.*, 113 U. S. 59, 5 Sup. Ct. 717; *Aron v. Railway Co.*, 132 U. S. 85, 10 Sup. Ct. 24; *Burt v. Ivory*, 133 U. S. 349, 10 Sup. Ct. 394; *Trimmer Co. v. Stevens*, 137 U. S. 423, 11 Sup. Ct. 150; *Manufacturing Co. v. Cary*, 147 U. S. 623, 13 Sup. Ct. 472; *Ex parte Faure*, 52 O. G. 752, 754. "All that Hall did was to adapt the application of old devices to a new use, and this involved hardly more than mechanical skill." Mr. Justice Jackson in *Knapp v. Morss*, 150 U. S. 228, 14 Sup. Ct. 81; citing *Aron v. Railway Co.*, supra.

The patentee demands the enforcement of the contract for the statutory monopoly of 17 years, implied by his patent. The public denies the validity of the contract, on the ground of the lack of the alleged consideration. In such a case the court may put itself as nearly as possible in the situation of the parties, for the purpose of determining the object the respective parties had in view, and their respective rights and obligations thereunder. In this situation, the court, by a review of the state of the art, may ascertain what the public already had, what it still required, what the patentee sought to accomplish, what was the measure of his success, and what was the character of the means by which it was achieved. If it appears on the part of the public that it has only received from the patentee such improvement in means or result as the public might have procured by presenting its wants to a skillful mechanic, provided with the appliances and knowledge and skill connected with the exercise of the art, then there is no reason why the patentee should be permitted to demand a monopoly as the price of a combination which would naturally have been disclosed in the ordinary development of the art. But if the results of the skill of the

artisan still show the barrier of impracticability between the end sought and the result attained, an interval between theory and practice, a limitation upon further development, while the alleged inventor, by the exercise of a discriminating faculty, distinguishes difficulties, and estimates their proportions, and breaks down the barrier, or bridges the interval, or stretches beyond the limitation, by an instrumentality which, in the very facts of its construction and operation, by the adaptation of its mechanism to the end sought, suggests design, then he has contributed something of creative thought, he has invented this new instrumentality, his contract is valid, and his monopoly should be sustained. Applying these tests to this case, where do we find the flash of creative thought, where the conceptions, where the contribution of an invention to the public? Not in the elements of arrangement of the combination, for they were furnished by the prior art; not in the details of construction or distinguishing characteristics of the combination, for they were not disclosed in the caveat, and everything which distinguishes this patent from the prior art was described by Siemens before the application was filed; not in the first practical operation, for, as to that, Edison and Siemens were first.

The complainant strenuously claims that the defendant is estopped to deny the validity of said patent. For the purpose of considering this question, it becomes necessary to explain the present relations of the parties to the suit, and the relations formerly existing between the parties now represented by the complainant and those now represented by the Edison General Electric Company. The defendant in this case is the Jamaica & Brooklyn Railroad Company, but it appears by the record that it is a customer of the Edison General Electric Company, and that said latter company is defending this suit. The complainant, the Electric Railway Company of the United States, was organized on or about May 5, 1883, for the purpose of developing the inventions of Stephen D. Field and Thomas A. Edison having for their object electrical propulsion on railways, and for the manufacture, use, and sale of machines and appliances in connection therewith. Previous to such organization, the interference proceedings heretofore referred to had been going on in the patent office between said parties, and the object of this organization was to form a pool for the combination of the two interests on an equal basis. The contract under which this arrangement was to be carried out had been, on April 26, 1883, executed by Messrs. Field and Edison and their associates, and provided for the formation of said corporation, and for the assignment to it of all inventions then owned or controlled by the parties, and of all future inventions of said Field and of said Edison made prior to January 12, 1886, exclusively applicable to electrical propulsion on railways, except for elevated railroads in the city of New York, and for the prosecution of said pending interferences by said corporations. The contract further provided that the business of said corporation should consist in the development of said inventions; the manufacture, use, and sale of appliances in

connection therewith; the disposition of rights thereunder; and that the corporation should have nine directors,—four to be named by the Field party, four by the Edison party, and one by a majority of the directors. Under this arrangement the interferences already referred to were prosecuted by said corporation, this complainant, until after April 1, 1889, when, the patent office having rejected the Field fourth and fifth claims, on the ground that they were anticipated by the Clark patent, said claims were canceled by counsel for Field. The Field patent issued July 16, 1889. In May, 1889, the Edison interest, having secured a majority of the stock of the complainant corporation, elected a majority of the board of directors, who elected such executive officers as they desired. Thereafter the Edison interest refused to furnish money to promote the interests of the complainant corporation, and to hold or attend meetings, until a suit was brought by the Field interest for the appointment of a receiver for said corporation. It is perhaps immaterial to inquire as to the causes which operated to produce this change in the relations of the parties. The complainant asserts that the Edison interest refused, in 1889, to further co-operate with the Field interest, because it had in the mean time absorbed a number of rival corporations owning patents, and thought it would be more profitable to develop an electrical railway system under said patents, of which it owned the whole, rather than under the Field patent, of which it owned but half. The defendant asserts that as one of the reasons which led to such formation of said corporation was the conflicting claim of Edison and Field to the invention set forth in the fourth and fifth claims of the Field application, the stock received by each interest was the consideration for, and represented its contribution to, said corporation. When the counsel for Field erased and abandoned said claims, the question arose whether it would be more profitable to the defendant to put up money to litigate said patent, or to try to buy out the Field interest, and use said patent in connection with the other patents owned by the Edison interest. The defendant further claims that, having consulted Mr. Benjamin F. Thurston, and having received an opinion from him unfavorable to the patent, it made an agreement with the Field interest that each should give back what it received and receive back what it put in; and that the rejection and cancellation of said claims, and the conclusions set forth by Mr. Thurston, were the controlling reasons which actuated the Edison interest in terminating its relations with the Field interest. But, whatever may have been the operating cause, the fact is that on April 29, 1890, the complainant, for value received, transferred to the Edison General Electric Company, then representing the Edison interest, all the inventions, patents, and rights which it had received from the Edison Electric Light Company or from Thomas A. Edison under the various agreements existing between the parties, and the said Edison General Electric Company agreed, to transfer to such person or corporation as the complainant might designate, the shares of stock which it, the said Edison Company, had received as its share of the assets of the complainant, and that

it would cancel certain debentures, and assume a certain claim of Thomas A. Edison under one of said agreements. The transaction practically amounted to a retransfer to the Edison interest of the Edison inventions which it had put into the complainant corporation, and a surrender by said Edison interest of whatever interest and rights they had received therefor. There was no assignment of any interest in the Field patent, except such as may be implied from said transaction. Upon these facts, complainant claims that the Edison General Electric Company is estopped by said agreement to deny the scope or validity of the patent in suit. The complainant further contends that said company is, by its conduct, estopped to defend this suit.

As has already been stated, the complainant corporation was organized for the utilization and production of inventions and appliances for the propulsion of railway cars by electricity. But it appears that in 1889, not only was the Edison interest refusing to aid the complainant company in the business for which it was created, but the Edison General Electric Company was itself engaged in the manufacture and sale of such appliances, and had acquired control of the Sprague Electric Railway & Motor Company, a large customer of said Edison Company; and that the electric railways introduced by said Sprague Company, and for which said Edison Company was furnishing material, would infringe the Field patent if it were sustained with as broad a construction as was hoped for. It further appears that the Edison interest had under consideration the question as to the advisability of purchasing the Field patent, and as to whether it was worth acquiring at the large price asked for it by the Field interest, and that, in this connection, the Thurston opinion was obtained; and that the Edison interest, by its refusal to aid the complainant to carry out the objects for which it was organized, or to attend its meetings, compelled the complainant corporation to make said transfer agreement of April 29, 1890. And complainant claims that these facts show dishonest and fraudulent conduct on the part of said Edison General Electric Company, and bring them within the rule which forbids a party to occupy inconsistent positions. They strenuously urge that the Edison interest, being in privity with the Edison General Electric Company, alleged to be the actual defendant herein, has affirmed the validity of the patent in suit, the priority of the invention of Field, and the patentability of its subject-matter; and that, having assumed one position as applicants in the patent office, they cannot assume another position as defendants in the courts. It may be assumed that the conduct of the parties representing the Edison interest towards the complainant company was inequitable and unjustifiable; that it was in gross violation of the understanding of the parties to the original contract, and was a perversion of the purposes for which the complainant corporation was organized; and that the Edison interest, having been disappointed in the result of the Field application, resorted to oppressive means to get rid of what had proved to be a bad bargain. The earnestness with which this claim of estoppel has been presented in various aspects in the

brief and arguments of counsel for complainant, and its vital importance to the determination of the issues in this case, seemed to demand, and have received, most careful consideration. The result of these considerations seems to show that there are insuperable obstacles in the way of the claim that, by reason of these facts, the Jamaica & Brooklyn Railroad Company is estopped to deny the validity of the Field patent. The case presented does not involve the question of the right of a vendor who, having obtained a valuable consideration by representations as to the validity of a patent, attempts to dispute its validity, to the damage of the transferee. Assuming that the Edison Electric Company, which is defending the suit against its customer, is the real defendant, this is not a suit by a vendee against a vendor, but a suit by a corporation, which has rescinded a sale or transfer to it of certain patents and rights, against another corporation, whose only connection with this case arises from the fact that its stockholders were stockholders of the complainant corporation at the time the acts complained of occurred, and, as stockholders, participated in such acts. The disposition of the questions presented depends upon the rights and liabilities of stockholders of a corporation arising out of their ownership and the disposition of their shares of stock in said corporation. The general rule that the assignor of a patented invention is estopped to deny the validity of the patent as against his assignee is well settled. *Rob. Pat. p. 555, § 787; Purifier Co. v. Guilder, 9 Fed. 155; Curran v. Burdsall, 20 Fed. 835; Barrel Co. v. Laraway, 28 Fed. 141; Woodward v. Machine Co., 60 Fed. 283.* It may be suggested at the outset that whatever rights the minority stockholders may have had they had against the corporation, not against any body of stockholders. The minority stockholders, having originally invoked the aid of the law to compel the complainant to act, afterwards concluded to protect their interests by a dissolution of the original arrangement, and a resumption by each interest of what it had originally contributed. When that agreement was consummated, each corporation stood upon its rights to protect its own interests. There was no agreement on the part of the Edison interest that by such surrender and transfer it should be deprived of any rights which it originally had, or would have had, to defend its own patents, provided no such consolidation had been effected. Even if the parties who represented the Edison interest were actuated by dishonorable motives, this does not affect their standing in this case, provided they committed no wrongful act. This question is fully discussed, and the principle to be applied thereto is clearly stated, by Judge Wallace in *Ervin v. Navigation Co., 20 Fed. 577.* A party is not debarred from the vindication of a legal right because he is actuated by an improper motive. *Phelps v. Nowlen, 72 N. Y. 39.* The inquiry must be in each case, in law or in equity, with reference to the plaintiff's right of action, and not to his ulterior motives and purposes. *Clinton v. Myers, 46 N. Y. 515.* And, even if the acts of the corporation, or its omission to act, could have been charged against them as holders of a majority of the stock, such charge should have been pressed under appro-

private proceedings, in connection with the receivership application, or, at least, while they remained members of the complainant corporation. By the abandonment of said proceedings, and the execution of said agreement, the Field interest elected to protect their rights by a dissolution of the previously existing corporate relations, and they cannot now go behind said agreement, or extend its operation to matters not embraced therein by reason of said prior relations. But I do not decide this question upon these grounds, but upon the well-settled distinction between the legal status of the corporate entity and its stockholders, and between the ownership of stock in a corporation and the ownership of the property of the corporation.

Complainant claims, in effect, that the defendant company may be estopped by the individual acts of its stockholders, done while they were stockholders, and officers of the complainant corporation. Complainant's counsel insists that the settlement between the stockholders of the complainant amounted to a sale by the defendant to the complainant of an interest in the patent in suit. I do not so hold. The stockholders of the complainant corporation, called the "Edison interest," neither prosecuted the application for the patent nor conducted the interferences on behalf of the patentee in the patent office. They neither owned said patent when it issued, nor did they sell it to the complainant corporation. Whatever was done was done by the complainant itself. The retransfer of the stock of the Edison interest to the stockholders representing the Field interest operated as a rescission of the original agreement, not as a sale of the Field patent. That a stockholder has no title whatever to corporate property is well settled. Thus, in *Preservers' Co. v. Norris*, 43 Fed. 711, a manufacturing corporation sold its business to its principal stockholders, who thereupon sold it to a third person, with an agreement not to enter into the same business, directly or indirectly. This agreement was not signed by the corporation. It was held that the corporation was not bound. Judge Thayer, in his opinion, says:

"It is familiar law that a corporation has a personality of its own, distinct from that of its stockholders; that it is not affected in the most remote degree by contracts by its stockholders with third parties, whether they own much or little of its capital stock, and is not bound to discharge any personal obligations assumed by its stockholders."

It is clear that the ownership of a patent by a corporation confers no right on its individual stockholders to the use of the patent. The right in such cases is a mere corporate one, and cannot be transferred by the stockholders to another corporation. *Hapgood v. Hewitt*, 119 U. S. 226, 7 Sup. Ct. 193; *Locke v. Lane & Bodley Co.*, 35 Fed. 289. "The fact that *Comegys* held stock in the company gave him no title to its property, and the attachment of his stock did not in the least incumber the property of the company, or prevent the assignment of the letters patent by it." Mr. Justice Woods, in *Gottfried v. Miller*, 104 U. S. 521, 528. The distinction above pointed out is further recognized and applied in *Pullman's Palace-Car Co. v. Missouri Pac. R. Co.*, 115 U. S. 587, 6 Sup. Ct. 194, where

a contract with the Missouri Pacific required it to haul Pullman cars on all roads owned or controlled by it. The supreme court held that the St. Louis, Iron Mountain & Southern Company was not controlled by the Missouri Pacific under this contract, although the Missouri Pacific owned all, or nearly all, of its stock. See, also, *Porter v. Steel Co.*, 120 U. S. 649, 670, 7 Sup. Ct. 1206. And in the very recent case of *Humphreys v. McKissock*, 140 U. S. 304, 11 Sup. Ct. 779, where several railroads combined to construct an elevator, each to contribute an equal sum towards its cost, and each to receive corresponding certificates of stock in a corporation organized to take title to the elevator, and to construct it, it was held that the interest of each railroad company therein was as a stockholder in the elevator corporation which constructed it, and that no company had any interest in the property of said elevator corporation. Mr. Justice Field, delivering the opinion of the court, reversing the decree, said:

"Both the commissioner and the court * * * seem to have confounded the ownership of stock in a corporation with ownership of its property. But nothing is more distinct than the two rights. The ownership of one confers no ownership of the other. The property of a corporation is not subject to the control of individual members, whether acting separately or jointly. They can neither incur nor transfer that property, nor authorize others to do so. The corporation—the artificial being created—holds the property, and alone can mortgage or transfer it."

Counsel for complainant finally claims that there is an estoppel based upon public policy, because Edison contended that Field was the inventor of the subject-matter set forth in the patent in suit. But Mr. Edison did not so claim, for he contended therein that he was a first inventor as to the only point in issue between himself and Field, namely, Field's fourth and fifth claims, which the patent office decided were void. He was never in interference with Field as to the claim now in suit. Such an application of the doctrine of estoppel, based upon that most uncertain and unsatisfactory ground of public policy, ought to be limited, rather than extended, in patent causes. There is necessarily involved on the other side the general consideration of public policy arising out of the right of the public to the enjoyment of the monopoly claimed under the invalid patent. As is said by Mr. Justice Shiras, in *Haughey v. Lee*, 151 U. S. 282, 14 Sup. Ct. 331:

"Whether or not there is any inconsistency in trying at one time to get a patent for a supposed invention, and in afterwards alleging, as against a rival successful in obtaining a patent, that there is no novelty in the invention, it cannot be said to constitute an estoppel. Besides, the defense of want of patentable invention in a patent operates not merely to exonerate the defendant, but to relieve the public from an asserted monopoly."

In view of these considerations, the defendant is not estopped to deny the validity of the first claim of the patent in suit. Let a decree be entered dismissing the bill.

JONES v. HOLMAN et al.

(Circuit Court, E. D. Pennsylvania. January 30, 1894.)

No. 15.

This was a suit by Joshua R. Jones against William A. Holman and others for infringement of letters patent No. 432,411, for an invention relating to easel albums. Plaintiff obtained a decree, the case being fully reported in 58 Fed. 973. The defendants thereupon filed a petition for a rehearing.

A. B. Stoughton, for complainant.

Hector T. Fenton, for defendant.

DALLAS, Circuit Judge. The defendants' petition for a rehearing, having been argued upon the merits, has been fully considered, but will be disposed of without going into the case at length.

The three claims involved were all adjudged (plainly, it was supposed) to be valid. The exhibit Weiderer Picture Frame No. 4 was not overlooked. It is true that neither the first nor the third claim includes an inclined stand, but they each include a "stand" which is wholly absent from the Weiderer frame. That device discloses nothing resembling a stand, inclined or otherwise, capable of serving as a resting place for the back or edge of the book to roll upon as its cover turns on the fulcrum rod. However much this frame may be supposed to resemble the plaintiff's device, now, when both are seen together, it is obvious, I think, that they are not, in the sense of the patent law, substantially identical or conflicting. The Weiderer contrivance was not designed, and could not be successfully used, to accomplish the object proposed and attained by the patented combination, as set forth in either of the claims in question. The defendants' device, which is especially dealt with in the opinion filed, is the one which was chiefly referred to upon the argument; and, that having been held to be an infringing one, it was not deemed requisite to discuss any other. The reasons for my conclusion that the defendants had infringed, and the ground upon which that finding rests, have been sufficiently stated. I cannot agree that, in the defendants' arrangement, what is called in this petition "the cross-bar of a hinge brace" essentially differs from the corresponding part shown and described in the patent in suit, or that it does not perform the same function. There is nothing suggested by the present petition which had not already been heretofore considered, or which, in my opinion, should change the result heretofore announced. Rehearing refused.

MERRITT v. MIDDLETON et al.

(Circuit Court of Appeals, Second Circuit. April 19, 1894.)

No. 90.

PATENTS—INVENTION—EYEGLASS HOLDERS.

The Clawson patent, No. 175,821, for an eyeglass holder, consisting of a combination of a hook with a pin, identical with the device shown in the