

these parts are not included in claims 1 and 2, and are expressly added in claim 3, which is not alleged to have been infringed.

The motion made by counsel for the complainants to suppress a portion of the deposition of Clarence E. Bement, taken on June 23, 1898, and certain exhibits referred to in said deposition, must be allowed. The defendant should have completed his evidence with respect to the state of the art before the taking of complainants' testimony in rebuttal. He had no right to introduce additional testimony and exhibits, even for the sole purpose of narrowing the claims, after the evidence of the complainants had all been taken, and their expert had been fully examined with reference to the prior art as it had then been made to appear. A number of patents were introduced in this irregular manner, and the only witness called to explain them was Clarence E. Bement, who did not do so in sufficient detail to adequately support the opinions which he expressed. Yet, being reluctant to disregard any matter which might possibly be persuasive, I have, with such aid as could be derived from Mr. Bement's testimony and the arguments of counsel, examined these patents, but cannot find that, if offered in due season, they would have changed the conclusion which I have reached. Decree for complainants.

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WESTINGHOUSE ELECTRIC & MANUFACTURING CO. v. CATSKILL  
ILLUMINATING & POWER CO.

(Circuit Court, S. D. New York. May 17, 1899.)

PATENTS—VALIDITY—ELECTRICAL TRANSMISSION OF POWER.

The Tesla patent, No. 511,559, for certain new and useful improvements in "electrical transmission of power," is not void on its face, as covering merely a mode of operation involving only the function of certain machines or apparatus, but is for a new method of producing an electrical result, which method is carried out by the use of apparatus.

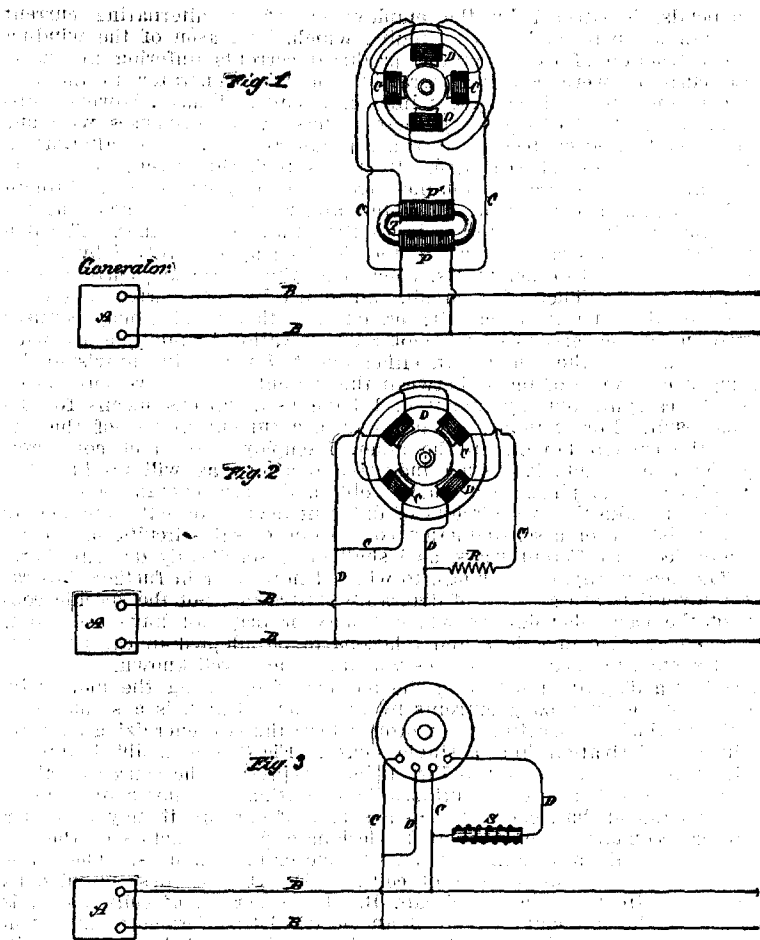
This was a suit in equity by the Westinghouse Electric & Manufacturing Company against the Catskill Illuminating & Power Company for alleged infringement of certain patents. The bill was demurred to by defendant, in so far as it was based upon letters patent No. 511,559, issued December 26, 1893, to Nikola Tesla for certain new and useful improvements in the "electrical transmission of power"; the ground of the demurrer being that the patent, on its face, is for a mode of operation involving only the function of certain machines or apparatus, and therefore covering a process not patentable under the law.

The patent, excepting the formal parts, was in full as follows:

"In certain patents, heretofore granted, I have shown and described a system of electrical power transmission, in which each motor contained two or more independent energizing circuits, through which were caused to pass alternating currents, having in each circuit such a difference of phase that by their combined or resultant action they produced a rotary progression of the poles or points of maximum magnetic effect of the motor, and thereby maintained the rotation of its movable element. In the system referred to and described in said patents, the production or generation of the alternating currents, upon the combined or resultant action of which the operation of the

system depends, is effected by the employment of an alternating current generator with independent induced circuits, which, by reason of the winding or other construction of the generator, produced currents differing in phase, and these currents were conveyed directly from the generator to the corresponding motor coils by independent lines or circuits. I have, however, discovered another method of operating these motors, which dispenses with one of the line circuits, and enables me to run the motors by means of alternating currents from a single original source. Broadly stated, this invention consists in passing alternating currents, obtained from one original source, through both of the energizing circuits of the motor, and retarding the phases of the current in one circuit to a greater or less extent than in the other. The distribution of current between the two motor circuits may be effected by induction or by derivation. In other words, I may pass the alternating current from the source through one energizing circuit, and induce by such current a second current in the other energizing circuit; or, on the other hand, I may connect up the two energizing circuits of the motor in derivation or multiple arc with the main circuit from the source. In either event, I make due provision for maintaining a difference of phase between the currents in the two circuits or branches. In carrying out my invention I have used various means for securing this result. For example, when I induce a current in one of the circuits from the current flowing in the other, I employ a form of converter, or bring the two circuits into such inductive relations as will produce the necessary difference of phase; or, when I obtain the two energizing currents by derivation, I make the two circuits of different degrees of self-induction by inserting a resistance or a self-induction coil in one of said circuits, or I combine these devices in different ways, as I shall more specifically describe hereinafter. The accompanying drawings, to which I now refer in further illustration of my invention, are a series of diagrams illustrating, not the specific construction of the particular devices which I may or may not have used, but, rather, the electrical connections and relations to be adopted in carrying out the present system by means of devices which are now well known.

"Figure 1 is a diagram illustrating the method of operating the motors by inducing one of the energizing currents by the other. Fig. 2 is a similar diagram of the method of operating the motors where the two energizing currents are obtained by derivation from a single source. Fig. 3 is a modified application of this principle. Referring to Fig. 1, let A represent the source of alternating currents which are to be utilized in operating the motor or motors. It will be understood that, considered as a source of current, it may be either a primary or secondary generator. B, B, designate the conductors of the circuit, which convey the alternating currents to one or more motors. The motor has two energizing circuits, or sets of coils, C, D. One of these circuits, as C, is connected directly with the circuit, B. The other set of coils, as D, is connected up in the secondary circuit of an electrical transformer or induction coil, T. The primary coil, P, of this transformer, is included in the circuit, B. The alternations of current in the circuit, B, tend to establish, in their passage through the coils, C, a polarity at right angles to that set up by the coils, D, and, if the currents in the two sets of coils accord in their phases, no rotary effect would be produced. But the secondary current developed in the coil, P', of the transformer, will lag behind that in the primary, which lag or retardation may be increased, as I have shown in another application, to a sufficient extent to practically obtain the same result as though two independent alternating currents were used to energize the motor. In Fig. 2 the two energizing circuits of the motor are shown connected in multiple arc to the circuit, B, B, and in one of these circuits is a resistance, R. Assuming the two motor circuits to have the same self-induction and resistance, no rotary effect will be produced by the passage through them of an alternating current from the source, A. But if one of the motor circuits, as C, be varied or modified by the introduction of a dead resistance, R, the self-induction of that circuit or branch is reduced, and the phases of current therein retarded to a correspondingly less extent. The relative degrees of retardation of the phases of the current in the two motor circuits, with respect to those of the unretarded current in the circuit, B, thus produced, will set up a rotation of the motor, which may be practically utilized for many purposes. In Fig. 3, the



arrangement of the parts is similar to that shown in Fig. 2, except that a self-induction coil, as S, is introduced into one branch or energizing circuit of the motor. The effect of thus increasing the self-induction in one of the circuits is to retard the phases of the current passing therein to a greater extent than in the other circuit, and in this way, to secure the necessary difference in phase between the two energizing currents to produce the rotation of the motor.

"In an application filed, of even date herewith, I have shown and described other ways of accomplishing this result, among which may be noted the introduction of a resistance capable of variation in each motor circuit, or the use of a resistance in one circuit and a self-induction coil in the other. In the above description I have referred mainly to motors with two energizing circuits, but it is evident that the invention applies equally to those in which there are more than two of such circuits; the adaptation of the same being a matter well understood by those skilled in the art. I do not claim in this application the specific devices employed by me in carrying out the invention, having made these the subjects of other applications. What I claim herein is: (1) The method of operating motors having independent energizing circuits, as herein set forth, which consists in passing alternating currents through both of the said circuits, and retarding the phases of the current in one circuit to a

greater or less extent than in the other. (2) The method of operating motors having independent energizing circuits, as herein set forth, which consists in directing an alternating current from a single source through both circuits of the motor, and varying or modifying the relative resistance or self-induction of the motor circuits, and thereby producing in the currents differences of phase, as set forth."

Thos. B. Kerr, for complainant.  
Seward Davis, for defendant.

SHIPMAN, Circuit Judge. The bill of complaint, so far forth as it relates to letters patent No. 511,559 is demurred to upon the ground that the patent is for a mode of operation which involves only the function of certain machines or apparatus, and is therefore, upon its face, for a process which is not patentable under the law. The patent is not for a function, but is for a new method of producing an electrical result, and the method is carried out or produced by the use of apparatus. The Telephone Cases, 126 U. S. 531, 8 Sup. Ct. 778. The demurrer is overruled, with costs.

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LAFOURCHE PACKET CO. v. HENDERSON.

(Circuit Court of Appeals, Fifth Circuit. May 23, 1899.)

No. 810.

1. APPEALS IN ADMIRALTY—ASSIGNMENTS OF ERROR.

An assignment "that the court erred in holding that libelant was entitled to any compensation for the injuries received" by him is too general.

2. SHIPPING—INJURIES TO SEAMEN—LIABILITY OF SHIP.

It seems that, under the general admiralty practice, a seaman injured through the use of defective appliances furnished by the owners of the ship may proceed against the ship for damages.

3. SAME—NEGLIGENCE—DEFECTIVE APPLIANCES.

Where a skid used to stow barrels into the hold was broken on a prior voyage, to the knowledge of the ship's officers, so that, through the sagging of one side of it, a bolt worked up and caught a barrel being sent down, and threw it off and against a seaman engaged in the work, the ship was liable for the injuries inflicted.

4. SAME—ASSUMPTION OF RISK.

A seaman does not assume the risk involved in the use, under orders, of patently defective appliances furnished him by the master.

5. SAME—DAMAGES—EXCESSIVENESS.

Where both bones of the leg of a seaman were broken through negligence, and after the injury he was grossly neglected by the officers of the ship, and the injury was permanent and greatly damaged him in his earning capacity, damages of \$2,000 were not excessive.

Appeal from the District Court of the United States for the Eastern District of Louisiana.

On or about March 8, 1898, William Henderson, appellee, was shipped at New Orleans, La., as a seaman in the service of the steamboat Lafourche, for a voyage to Thibodaux, La., in Bayou Lafourche, and return to New Orleans, at the wages of \$80 per month and found. The boat made the outward trip with libelant in the service thereof. On the return trip, and while said vessel was lying at a plantation on Bayou Lafourche, the said Henderson, with others of the crew, was duly ordered to go into the hold or hull of said steamboat to aid and assist in storing cargo. Accordingly he proceeded to the place or part