

BUTZ THERMO-ELECTRIC REGULATOR CO. v. JACOBS ELECTRIC CO.
v.36F, no.3-13
Circuit Court, E. D. Wisconsin. October 1, 1888.

1. PATENTS FOR INVENTIONS—INFRINGEMENT—ELECTRIC HEAT AND VAPOR GOVERNORS.

Letters patent No. 232,284, issued December 2, 1879, to Julien M. Bradford and his assignee, Z. H. Harmon, for an improvement in electric heat and vapor governors for spinning and weaving rooms, consisting of a damper regulator operated by battery power, the current of which is opened and closed by the contraction and expansion of a thermometer in the room whose temperature is to be regulated, and which current, by means of a second circuit breaker, is in use only while moving the damper or valve regulating the supply of heat, and not while the valve is closed, as under former devices, cover, as to the second circuit breaker, an original invention, and are infringed by a device having two magnets, one for each circuit, two armatures, and two second circuit breakers, instead of one of each, as in the Bradford patent, and which performs substantially the same function.

2. SAME.

They are also infringed by a device performing substantially the same function, consisting of an opening and a closing circuit, each of which is closed by the thermometer at the proper time; a magnet, which is included in first one and then the other of said circuits; an armature to the magnet, which vibrates in response to the current; and a train of mechanism for opening and closing the valve; and some spring constituting a second circuit breaker; the motors in both devices starting when the thermometer makes a circuit, and continuing in motion until a half revolution is made, thereby opening or closing a valve, and then being automatically stopped by substantially the same means.

3. SAME—INFRINGEMENT—REMEDIES—INJUNCTION.

Where infringing articles have been manufactured for purposes of sale and use, and have been advertised for sale, injunction will issue, although none of the articles have been actually used or sold.

In Equity. Bill to restrain infringement of patent.

E. H. Bottum and *A. C. Paul*, for complainant.

S. S. Stout, for defendant.

JENKINS, J. The complainant files its bill to restrain the alleged infringement of letters patent No. 222,234, issued to Julien M. Bradford and his assignee, Z. H. Harmon, December 2, 1879, for "improvement in electric heat and vapor governors for spinning and weaving rooms," and as assignee of the patentees. The defendant, by its answer, (1) asserts that Bradford was not the original inventor of the alleged improvements purporting to be embraced in such letters patent, but that such alleged invention had previously been patented by certain letters patent of the United States, and of the kingdom of Great Britain, particularly set forth in the answer to the bill; (2) asserts that the alleged improvements embraced in the letters patent to Bradford and Harmon, in view of the state of the art at the time and previously existing, does not embrace any patentable invention, and is invalid; (3) denies infringement. At the hearing, all questions of the sufficiency of the

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Bradford patent, and of anticipation of his invention, were yielded by defendant's counsel. The questions submitted for decision were: (1) Should the complainants, under the proofs, be limited to the exact combinations and

methods specified in its letters patent, or may it hold as infringers those who use equivalents for any of the elements of those combinations? and (2) has the defendant infringed?

In order to determine the first of these questions, it becomes essential to examine the claimed invention of Bradford, and the state of the art at the time of such claimed invention, so far as may be necessary to ascertain whether his invention may properly be deemed a primary invention,—that is, one which performs a function never performed by any earlier invention,—or whether it is a secondary invention,—that is, one which performs a function previously performed by some earlier invention, but performing that function in a substantially different way from any preceding invention. I avail myself of counsel's accurate and intelligent description of Bradford's invention, and the state of the art at the time of such invention, so far as seems necessary to a correct understanding of the case presented:

“Prior to Bradford's invention, it had been proposed to place a thermometer in a room whose temperature was to be governed, and to connect the wires of an electric circuit with it, so that, as the temperature rose, the thermometer would expand, and close the circuit. The electric current flowing through the circuit would energize an electro-magnet that was arranged in the circuit, and this would attract and raise a lever to which a valve or damper was attached. The raising of the lever would shut the damper, and thereby cut off the supply of heat from the room in which the thermometer was situated. The temperature would then begin to fall, and the thermometer would contract sufficiently to break the circuit. The magnet would then be demagnetized, and would release the lever, and allow a weight or spring, acting on the damper, to open it. The objection to this regulator was that the electric circuit was necessarily closed all of the time while the damper or valve was closed, and, as this might require a large portion of the time, there would be an excessive consumption of battery power, the battery would be exhausted in a few hours, and the device would then become inoperative. In this regulator, also, the pull of the magnet was the only power that was used to operate the valve or damper, and it moved the damper only in one direction, and a spring or weight moved it in the other direction. The magnet must then have moved the valve against the tension of this spring or weight. The battery power must be used to move the valve against the force of a spring or weight that was sufficient to open the valve when released, and it must also hold it closed against this force. More than twice the force that would be needed to move the valve itself must be expended by the battery for a large portion of the time. The only other heat regulator that was used prior to Bradford's invention was like this, except that a continuously running independent power (such as a continuously running clock movement, or a continuously running steam-engine) was arranged to move the valve; and the lever, that was in the other instance connected to the valve itself, in this instance was arranged to throw a clutch into engagement between the continuously operating power (engine or clock movement)

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and the valve. As long as the circuit was closed, and the clutch was in engagement with the proper device, the valve would be turned in one direction, and the heat would be cut off from the room. When the temperature fell, and the circuit was broken, a spring threw the lever in the other direction, and withdrew the clutch, and brought another clutch into engagement with the proper mechanism, which then reversed the Valve. In this device, as in the other, so long as the temperature was above the normal, and the heat was shut off, the circuit must

be closed, and the excessive consumption of battery power would continue. In addition to this, while larger valves could be used than in the other case, as the valve was moved by an independent power, still, as there was no way of stopping the motor, and having it start again when it was needed to move the valve, it was necessary to have it running all of the time, so that it would move the valve whenever the clutch mechanism was connected with it. There were some other devices more or less analogous to these, but all operated on the same principle; that is to say, in all of them the electric circuit remained closed, and the battery was being consumed all of the time while the valve was closed. The problem that Bradford undertook to solve was to produce a heat regulator in which the battery power and the motor would be in use only while the valve was being moved, and would both be at rest all of the time while the valve was stationary, whether in its opened or closed position. Bradford made a regulator having two electric circuits connecting the thermometer with the motor. One of these circuits he called the 'closing circuit, as its whole office was to cause the motor to close the valve, and the other circuit he called the 'opening' circuit, as its whole office was to cause the motor to open the valve. Bradford also provided a second circuit breaker that was adapted to form a part of either circuit, and was arranged to be moved by the valve-operating mechanism, and break either circuit immediately after it had been closed at the thermometer, and the motor had started to close or open the valve. This circuit breaker consisted of a spring that was attached to a moving part of the valve-operating mechanism, and played between two insulated pins. When the valve is open, the spring is in electrical contact with one of the pins, and forms a part of the 'closing' circuit. The valve being open, and the heat entering the room, the temperature rises. As soon as the thermometer expands sufficiently it completes or closes the 'closing' circuit, an electrical impulse passes to the motor, causing it to start, and close the valve. At the same time the second breaker moves away from the pin against which it was resting, and passes over against the other pin. When it leaves the first pin it breaks the 'closing' circuit, and the consumption of battery power instantly ceases. When it comes in contact with the other pin, it closes the other or 'opening' circuit at that point. This circuit, however, is now open at the thermometer; but as the heat is now cut off from the room, the next movement of the thermometer will be a downward or contracting one, and after a time the metal spring carried by the thermometer will come in contact with the other contact screw, and the other or 'opening' circuit will be complete, an electrical impulse will be sent through this circuit, the motor will start, will open the valve, and at the same time the second circuit breaker will break the circuit which has just acted, and will move over into the other circuit, and put that in condition to be closed at the thermometer, and so on indefinitely. The second circuit breaker alternately forms a part of each circuit, and breaks each circuit immediately after it has done its work. This causes the battery to be in operation only while the valve is moving, and, also causes the motor

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to stop as soon as it has moved the valve. In other words, to quote the language used by the inventor in his specification: ‘By this arrangement the machine is always at rest, and the electric current always broken, excepting while the valve is being moved; thereby economizing the electrical and motive power to the greatest extent.’”

This automatic second circuit breaker is the distinctive feature of the invention, and its novelty, as applied to heat regulators, is confessed by the defendant at the hearing. It is therefore claimed in behalf of his patent that Bradford is a pioneer in the art, in the use of a heat regulator having a second circuit breaker of any kind, and that no one can avoid infringing his claims by a second circuit breaker of another form in the

same combination, or by omitting any one of his elements and substituting therefor an equivalent. Upon the other hand, it is asserted that, although the second circuit breaker was first applied by Bradford to heat regulators, yet that the idea of a second circuit breaker was not new; had previously been used in respect to other devices for other purposes; and that therefore the Bradford device must be limited to the "specific form of device" described, and that the complainant cannot invoke in its behalf the doctrine of equivalents. To sustain this position the defendant has introduced in evidence United States patent to H. W. Spang, No. 168,056, dated September 21, 1875. This was issued for an improvement in electric railroad signals, and is claimed to embrace the idea of a second circuit breaker. I am entirely satisfied from the evidence that this claim is unfounded; that in the Spang device the circuit is not broken at all, but the current is merely changed in its direction, and that no thought of a second circuit breaker was in the mind of the inventor. This, to my mind, is clear from the examination of the drawing attached to the specifications of the Spang patent, and from the clear description of it by the expert witness, Mr. Bates:

"The Spang patent No. 168,056 shows and describes an electric railway signal. A clock-work is tripped by an electro-magnet, and makes a quarter revolution, and shows a certain railway signal, the magnet being energized by an electric current in a circuit, which is closed by a key. When the circuit is broken again by the same key, and the magnet ceases to attract its armature, a spring draws the armature in the opposite direction, and thereby trips the clock-work motor, and displays another signal by a quarter revolution of the clock-work. This is the entire operation of the circuit, magnet, and motor-device. To show the operator at the key whether the proper signal is displayed, a pole-changer is applied to the motor, which changes the direction of the current sent Over the circuit. In other words, changes its polarity, and causes an indicator near the key to point to the word 'caution' or 'safety,' as the case may be. The pole-changer consists of a metallic drum having two rows of insulated spots, which alternate with each other. Three springs press upon the drum, one for each row of insulations, and one on the plain part of the drum. Whatever the position of the drum, one of these keys will rest upon an insulated spot, one upon an uninsulated spot, and the third upon the plain part of the drum. The two latter will therefore be in electrical communication with each other. The current is not broken by this device; it is simply changed in its direction; and the current flows over the circuit after the operation just as much as it did before. This drum, with its springs, therefore, is not a second circuit breaker like Bradford's. Bradford's absolutely breaks the circuit so that no current can pass, and it at the same time makes another circuit. The Spang device does not break the current at all. * * * It has no second circuit breaker, and therefore lacks the main and valuable feature of the Bradford patent."

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The defendant's contention in this regard failing, Mr. Bradford must be regarded as the original inventor of the second circuit breaker applied to heat regulators as described in his patents, and is entitled to treat as infringers all who make heat regulators having a second circuit regulator, "operating on the same principle, and performing the same function by analogous means, or equivalent combinations, although the infringing machine may be an improvement on the original, and patentable

as such;” *McCormich v. Talcott*, 20 How. 405; *Clough v. Manufacturing Co.*, 106 U. S. 166, 178, 1 Sup. Ct. Rep. 188, 198.

There are two devices exhibited in the record, marked respectively “Defendant’s Device No. 1,” and “Defendant’s Device No. 2,” which are claimed to have been, manufactured by the defendant, and to infringe the patent of the complainant. The main points of difference between “Defendant’s Device No. 1” and the Bradford device is that in the former there are two magnets, one for each current; two armatures; and two second circuit breakers. In the latter device there is but one of each. I think there can be no question of substantial identity. In all essentials the alleged infringing device is like Bradford’s. The two magnets are used for the same purpose; first one, and then the other. Bradford uses the same magnet all the time. The second circuit breaker in “Device No. 1” performs no function useful or material in the operation of the device which is not performed by the second circuit breaker in Bradford’s device. The device meets the two tests of equivalency, identity of function, and substantial identity of way of performing that function. This is confessed by the defendant’s experts, and is placed beyond question. The “Device No. 2,” when connected, forms an apparatus having a thermometer; an opening circuit and a closing circuit, each of which is closed by the thermometer at the proper time; a magnet which is included in first one and then the other of said circuits; an armature to the magnet, which vibrates in response to the current; and a train of mechanism for opening and closing the valve; and some springs, which constitute a second circuit breaker. The motive power in this apparatus is electricity, and the magnet referred to is made use of to transmit the electrical energy to the gearing which operates the valve. The second circuit breaker consists of a drum, half of whose surface is metallic and the balance non-conducting; and this drum is turned by the gearing which moves the valve, so that its metallic or conducting portion and its non-conducting portion alternately join the ends of the spring, thereby making and breaking an electrical connection. There are two sets of springs acted on by this drum, one being in one of the circuits, and the other in the other circuit. The difference between the second circuit breaker in this device—a drum and spring, instead of a plain spring as in Bradford’s—is not material, for the two forms were well-known substitutes and equivalents for each other at the time of Bradford’s invention. The difference in motors is also, as I conceive, immaterial. This device has an electric motor; that in Bradford’s device is mechanical; but electric and mechanical motors were well-known substitutes and equivalents for each other at the time of Bradford’s invention. In the Sweet patent, No. 169,057, of October 19, 1873, a similar electric motor is used to drive a clock; and spring and weight motors are undoubted equivalents, and have been long so used. These devices are alike in their use and operation. Both motors are started when the thermometer makes a circuit, and continue moving until a half revolution is

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made, thereby either opening or closing a valve, as the case may be; and then they are automatically stopped. Both motors are stopped by substantially

the same means. In the Bradford mechanical motor a mechanical resistance is interposed, which the mechanical power cannot overcome, and the motor stops in consequence. In the electrical motor an electrical resistance is interposed, which the electrical power cannot overcome, and the motor stops in consequence. In both cases the resistance is interposed automatically, by the motor itself. In Bradford's it consists of a dog which is caused by a half revolution of a wheel to engage the moving part of the motor, and stop its running. In "Device No. 2" the resistance consists of the non-conducting portion of the drum, which is caused by a half revolution of the drum, to intercept the moving electric current, and stop its flow. This is the usual way of stopping electric motors, and has been since such motors have been known; and Bradford's method is the usual way of stopping mechanical motors, and has been since such motors have been known. I cannot resist the conviction that each of these devices Nos. 1 and 2 is in substantial identity with the Bradford device, both in respect to function and the manner of executing its function. There may be slight differences of form, but none of substance. The principle is established that mere change of form, or an alteration in unessential parts, or the use of known equivalent powers, not varying essentially the machine or its mode of operation or organization, will not avail to avoid infringement. *O'Reilly v. Morse*, 15 How. 63.

It only remains to consider whether the defendant is responsible for these devices Nos. 1 and 2, in such manner as to authorize the exercise of the restraining power of the law. In its answer the defendant asserts that it has been and is engaged in manufacturing and selling—claiming the right so to do—electric apparatus for regulating temperature, under various letters patent owned by it, and has invested large capital in the enterprise, and in introducing the invention to the public. One of these patents, No. 365,600, issued to H. E. Jacobs, June 28, 1887, for electric temperature controlling device, exhibits the second circuit breaker as in the "Device No. 2" and makes claim thereto. It is disclosed by the evidence of Mr. Jacobs, the president of the defendant, that the company made five of the "Devices No. 1," and about twenty-five of the "Devices No. 2," claiming right so to do under his application for patents, and under patents to George W. Sternberg. Mr. Jacobs cannot remember of selling any of these devices, but recalls that, although the company has never received any money for any, it has advertised and offered for sale the device No. 2; that it is intended for use in connection with a battery and thermostat, connecting wires, dampers, or valves, as described in circulars issued by the company defendant. He claims that "Device No. 1" was put up for experimental purposes, to test its efficacy; and it proved a failure. There seems, however, to be no contention but that "Device No. 2" was actually manufactured with the intention to use as a feasible device, and that it has been so advertised and offered for sale. It is claimed that the complainant's proof is defective in that no actual use or sale for use of these devices had been proven. The evidence satisfactorily establishes that they were manufactured for the purposes

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of sale and use, and have been largely advertised for sale. If the objection were of substance, I think, upon the showing made, that it would be incumbent upon the defendant to clearly establish that there had been no actual sale or use. There certainly has been a threatened invasion of complainant's rights. The plea—however potential upon the question of damages—is unavailing to prevent the issuance of the injunctive writ. It constitutes an infringement to manufacture for the purpose of use, even if not actually used. *Whittemore v. Cutter*, 1 Gall. 429; *Truck Co. v. Mail-road Co.*, 10 Blatchf. 292,306; *Garter v. Baker*, 4 Fish. Pat. Cas. 404,419. Entertaining, therefore, no fair or reasonable doubt from the record of the substantial identity between the device manufactured by defendant and the Bradford device, there must pass a decree for the complainant, with an injunction, and the usual reference.