

SCHUYLER ELECTRIC CO. v. ELECTRIC ENGINEERING & SUPPLY CO.

(Circuit Court of Appeals, Second Circuit. February 11, 1895.)

PATENTS—LIMITATION OF CLAIM—PRIOR ART.

The Perkins patent, No. 247,103, for a circuit breaker for electric lamps, consisting of a device in which the current is broken by the snap action of a contact spring, which also acts as a pawl or detent, is limited by the prior state of the art, and by the language of the specifications, to the mechanical details described, and is not entitled to a broad range of equivalents. 62 Fed. 588, affirmed.

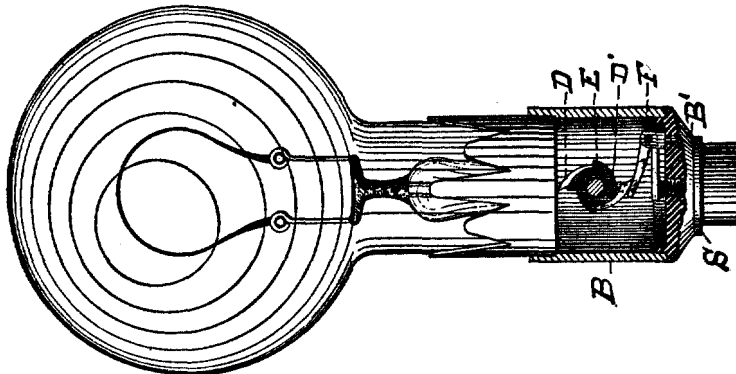
Appeal from the Circuit Court of the United States for the Northern District of New York.

This was a suit in equity by the Schuyler Electric Company against the Electric Engineering & Supply Company for infringement of letters patent No. 247,103, issued September 13, 1881, to Charles G. Perkins. The circuit court dismissed the bill (62 Fed. 588), and complainant appealed.

C. L. Buckingham, for appellant.
Alfred Wilkinson, for appellee.

Before WALLACE and LACOMBE, Circuit Judges.

LACOMBE, Circuit Judge. The patent is for a switch or circuit breaker for electric lamps. The switch is shown in the drawing and specifications as applied to the base or socket of an incandescent lamp.



A metal shaft, E, is journaled in opposite sides of a cylindrical insulating base, and carries an S-shaped piece of metal, D, on each side of which are insulating ratchet disks, D', so arranged that when the composite structure, D and D', is considered as a whole it is found to be a ratchet wheel with four teeth, two of which are metal connecting electrically through the shaft with one of the conducting wires, and two of which are insulated. The two kinds of teeth are arranged alternately. With the teeth there engages a V-shaped

pawl, F, having one of its arms widened so as to sweep over the entire thickness of whichever tooth it may encounter. The pawl is pivoted to a standard fixed in the lower part of the lamp, and a spring engaging with the lower arm of the V forces its upper arm against the ratchet wheel. The other connecting wire connects electrically, through the spring, with the V-shaped pawl. Therefore, when the pawl engages with a metal tooth of the ratchet wheel, an electrical circuit is made; when it engages with an insulating tooth, such circuit is broken. As the ratchet wheel is turned by the operating button on one end of the shaft, the pawl "wipes over" the tooth on which it rests, and when it reaches the end or point of that tooth, being pressed upon by the spring, slips off with a quick or snap action which carries it at once to the base of the next succeeding tooth. This quick action is of no particular advantage when the pawl springs from an insulating to a metal tooth, but when it springs from a metal to an insulating tooth the rapidity and extent of its movement overcomes a difficulty which would otherwise seriously impair the usefulness of a circuit breaker. When two metal points in contact with each other, and through which an electrical current is flowing, are slowly drawn apart, the space between will be filled by an electric flame or spark commonly called the "arc." The extent to which this arc will stretch between the separated points varies with the strength of the current. "Such spark or arc," as one of the witnesses expresses it, "produces a burning effect, which is the more serious the longer the time is during which the rupture of the circuit takes place. In general, it may be said that the burning caused by the spark or arc produces a disintegration, oxidation, or charring of the contact surfaces, and in this way brings it about that the surfaces are too much roughened to admit of intimate contact, or else that nonconducting or resisting elements are introduced, which lessen the carrying capacity of the switch. Inasmuch, therefore, as the deleterious effects of the spark or arc are increased by a slow separation of the contact surfaces, it has been found necessary to resort to a more rapid movement than that of the hand alone for effecting the desired separation." The witnesses all agree that the range of quick action should exceed the length to which the current to be broken can draw an arc, and that if there be a shorter range of quick action the switch would to that extent fail of its purpose. In the switch of the patent, quick action to an extent abundantly sufficient for a current of the strength employed is secured on every occasion when the circuit is broken, because the organization of the ratchet wheel and pawl prevents any backward revolution of the shaft by careless operators and a consequent re-establishment of circuit, which could thereafter be broken by hand action only.

The first claim of the patent, which is the only one declared on, is as follows:

"(1) The combination, in an electric light switch, of a ratchet having metallic projections, and insulating teeth in the intervals between the same, and a pawl or detent for engaging with the insulating teeth when released from contact with the metallic projections, as and for the purpose specified."

The circuit court held that the patent was a narrow one, and should be confined to the specific mechanical devices which it described. This is assigned as error, appellant insisting that Perkins was a pioneer in the field, and the first to break contact by a quickened motion of a detent or other device. Three patents are relied upon by defendant, and referred to by the circuit judge, as showing such a condition of the art as would preclude any broad construction of the Perkins patent. These patents are discussed at great length by complainant's experts and by its counsel, who insist that none of them show any such snap action as is described in the patent sued upon. That they do disclose the potentiality of such snap action is indisputable; and that there is a trifling springing movement in the Gilliland and Rogers patents as the contact spring slips off the metal tooth into the insulating air space between seems to be quite clear upon inspection. These prior patents were not used in electric lighting, but for telegraphic currents, which are very much weaker than those employed for illumination. In consequence, the extent of separation necessary to disrupt an arc would be very much less in the Gilliland device than would be required if a lighting current were being handled. But it was common knowledge in the art that an arc could be disrupted by a quickened separation to an extent greater or smaller as the current was stronger or weaker. Spaces of insulating material alternating with metal spaces in a wheel revolving under a contact point were old. Notches in a wheel which, although not lined with insulating material, were in fact insulating spaces, since air is a nonconductor, were old. A spring contact point which slipped off the metal tooth of a wheel into an insulating air space was old. A device to check all backward motion of the wheel, thus avoiding the re-establishing of the circuit last broken, was old. There was, indeed, no switch for electric lighting which had a snap action employed under all conditions to disrupt the circuit at the separation of contact. But electric lighting was in 1881 practically a new art, only just beginning to grow clamorous for practical devices; and the sister art of electric writing already possessed devices which disrupted the circuit through which its feeble currents passed by a snap action, very slight indeed, but quite sufficient to accomplish its purpose. These telegraphic devices, as the event shows, were susceptible of adaptation to use in the lighting art, by increasing the strength of the spring sufficiently to throw the contacts further apart within the same space of time, and by making the insulating space an area of insulating material, instead of an air space with conducting boundaries.

If we could be satisfied, as complainant's experts and counsel seem to be, that Perkins was the discoverer of the important fact that the practical, safe, and efficient way to break a current was by imparting a snap action to the contact points, or one of them, thus securing a much quicker separation than could be effected by movement imparted only by the hand of the operator, we should be inclined to give to his patent a broad range of equivalents, and not to

confine it to the mechanical details described. But the state of the art seems to preclude this, and whatever doubt there may be left as to the extent to which the earlier patents indicate structures fundamentally like Perkins', so far as snap action and a locking against backward movement are concerned, is effectually dispelled by the language of the patent itself. The patentee does not set forth that he is the discoverer of the utility of quick-action separation, nor even that his mechanism is the first devised for securing it. On the contrary, he says:

"My invention relates to improvements in that class of switches for incandescent electric lamps in which the break is effected by the snap or instantaneous reaction of a spring when released from contact with a conducting point or plate."

And then follows the statement that:

"It [his invention] consists in mechanical details for effecting this, the principal features of which are a ratchet wheel having both conducting and insulating teeth combined in operative relation with a spring pawl or detent, which acts as a contact maker with the conducting portions of the ratchet, and by engaging with the insulating teeth prevents the ratchet from being turned backward when the pawl has been released from contact with the metallic portions."

The patentee then sets forth specifically and with reference to the drawings the mechanical details of his switch, and then adds:

"Instead of a swinging pawl, I sometimes employ a spring-seated contact stop with a broadened end, as shown in Fig. 4, which acts as a detent with ratchet, D', when not depressed by projections, D, and thus prevents the shaft from being turned in both directions."

The first claim covers both the V-shaped pawl and the spring-seated contact stop, the second claim covers only the V-shaped pawl.

It must certainly be assumed that Perkins knew what it was that he invented, and his patent must be construed to cover only what in unambiguous language he asserts his invention to be, namely, the mechanical details he describes, with the single variation in the form of the contact stop which he sets forth. And if the claim be thus confined, the circuit judge was entirely correct in the conclusion that the defendant's two forms of switch do not infringe. The decree of the circuit court is affirmed, with costs.

FOUGERES et al. v. JONES et al.

(Circuit Court, D. Indiana. February 18, 1895.)

No. 8,819.

1. PATENTS—INVENTION—THILL COUPLINGS.

The Blair patent No. 334,842, for an improvement in anti-rattlers for thill couplings, is void for want of invention.

2. EQUITY PRACTICE.

The court may, of its own motion, dismiss a bill because it fails to state facts sufficient to give any right to relief.