

ticular angle stated,—a proposition which, in view of the fact that the specification is silent on the subject, is not deemed tenable. Every mechanic accustomed to the use of the chisel and the joiner's plane is familiar with the principles upon which such knives work, and if, in a plane or in a cutter head, he should find a knife which stood at an angle of 80° scraping instead of cutting, as it is said the knives in some of the old machines did, he would be at no loss to apply the remedy. It is, of course, true that certain geometrical propositions are applicable to knives in such a machine standing at the angle of 45° which would not be applicable if the angle were different, and, conversely, if the angle were different the geometrical propositions incident thereto would not be applicable to knives inclined at the first-named angle; but patentability does not follow in the one instance more than in the other. It is to be observed, too, that, if the invention consists in the exact angle at which the knives stand, infringement cannot be established without proof that in the infringing machines they stand at that exact angle. The decree below should be affirmed, and it is so ordered.

EDISON ELECTRIC LIGHT CO. v. ELECTRIC ENGINEERING & SUPPLY CO.

(Circuit Court of Appeals, Second Circuit. February 14, 1895.)

1. PATENTS—INVENTION—ELECTRIC LAMP SOCKETS.

The Bergman patent, No. 257,277, for an improvement in the sockets of incandescent lamps, shows patentable invention as to claim 2, which covers a form of construction in which the contacts are compressed instead of drawn apart, while screwing the lamp into the socket. 60 Fed. 401, affirmed.

2. SAME—ANTICIPATION.

The fact that a slight compression of the contacts had existed in a prior lamp does not show anticipation of the Bergman patent, it appearing that such compression was immaterial to the form of construction employed in the prior lamp, and was not in the contemplation of the inventor thereof, or pointed out by him as an improvement, or in any way suggested as a function of the arrangement of the parts.

This was a suit in equity by the Edison Electric Light Company against the Electric Engineering & Supply Company for infringement of certain patents. The circuit court rendered a decree in part sustaining and in part dismissing the bill. 60 Fed. 401. Both parties appeal.

R. N. Dyer and C. E. Mitchell, for complainant.
Alfred Wilkinson, for defendant.

Before WALLACE, LACOMBE, and SHIPMAN, Circuit Judges.

LACOMBE, Circuit Judge. The suit was brought on five patents, viz.: No. 265,311, to Edison; No. 251,596, to Johnson; and Nos. 257,277, 293,552, and 298,658, to Bergman. All these patents relate to sockets for incandescent electric lamps. The patent to Edison, No. 265,311, was held valid by the circuit court, and was

also found to be infringed, but, because of the expiration of a Russian patent to Edison for the same invention, no injunction was granted. No appeal from that part of the decree was taken. The patent to Johnson, No. 251,596, was held by the circuit court to be invalid as to the claim in controversy. The complainant appealed, but upon the argument in this court the decree of the circuit court as to that patent was sustained on the opinion below. The third patent to Bergman, No. 298,658, was withdrawn at the argument from the consideration of the circuit court, and from so much of the decree as dismissed the bill as to that patent no appeal was taken. The second patent to Bergman, 293,552, was held valid by the circuit court, which decreed an injunction and accounting thereon. The defendant appealed, but upon the argument in this court the decree of the circuit court as to that patent was sustained on the opinion below. The first patent to Bergman, 257,277, was held valid by the circuit court as to the second claim, the only one of which infringement is charged. The defendant has appealed, and the determination of that appeal is the only question remaining to be decided by this court.

This first Bergman patent is one for an improvement in the details of an incandescent lamp socket, devised to overcome a difficulty which was found to exist in the earlier combinations of lamp and sockets. The lamp, which comes separate from the socket, is a glass bulb, surrounding the illuminating filament. Through the insulating material which closes the mouth of this bulb, and constitutes its base, run the leading-in wires which carry the current to the filament. Each of these leading-in wires is connected with a piece of metal on the outside of the lamp base, these pieces of metal being separated from each other by insulating material. When the base of the bulb is inserted in the socket, these pieces of metal come into contact, respectively, with the two wires which bring the current from the source of supply. When both are thus in contact, the current flows through the filament. When one of them is cut off from contact, by a key or other circuit-breaking device, the current ceases to flow, and the light is extinguished. Prior to Bergman's contrivance, the two pieces of metal which connected at the lamp base with the leading-in wires consisted of a screw-threaded band around the base near its lower end, and a broad flaring ring nearer to the bulb. The band engaged with screw-threaded metal in the socket, thus making electrical connection with one of the line wires. The flaring ring engaged with a like ring on the top of the socket, thus making connection with the other line wire. The insulating material of the base of the lamp, which formed a nonconducting body between the band and the flaring ring, was composed of plaster of paris. As the lamp base was screwed down into the socket so as to bring the two rings into proper contact, there was a constant tendency to pull the base apart between the screw-threaded band and the ring; and, as plaster of paris is a fragile material, it frequently happened that the insulating surface was cracked or disintegrated before the filament of the lamp was worn out. Bergman reversed the position of these

metal contacts in both lamp and socket. The screw-threaded band and its engaging thread on the socket were retained, but the rings nearer to the bulb were dispensed with. Instead of the flaring ring on the lamps, he placed, in the center of the base bottom, a metal disk connecting with one of the leading-in wires. Instead of the ring on the top of the socket, he placed a metal projection in the hollow space in the bottom of the socket, connected with one of the line wires, and arranged so as to impinge upon the metal disk in the bottom of the lamp base when the latter was screwed into the socket. In consequence there was no longer any tendency to pull the insulating material apart. On the contrary, as the screw thread drew the lamp base deeper into the socket, pressure on the bottom plate increased, and the insulating material was pressed closer together. The patentee in his specification sets out that the object he had in view was to "produce a socket for incandescing electric lamps which will have the electric terminals or contacts so constructed and arranged that terminals can be used on the base of the lamps, which, from their position, will subject the base to compression when it is screwed into the socket, instead of to tension, thus permitting the use of a molded base without danger of cracking between the terminals." The second claim, which is the only one in issue, is as follows:

"(2) In an electric socket, the combination, with the body of the insulating material, of a plate in the bottom of the socket, and a horizontal screw ring located between the bottom plate and the mouth of the socket, said plate and ring engaging opposite parts of an entering base or plug, and serving to compress the base or plug between the terminals carried by it, substantially as set forth."

It is to be noted that in this patent, which is for the socket alone, only half of Bergman's device is claimed. To its successful operation it was quite as essential that the old lamp base should be remodeled as it was that the form of socket be changed. And the patentee testifies that when he perfected his device, and showed it to Mr. Edison, in whose employ he then was, the latter at once gave instructions to the manager of the lamp factory to stop making the old-style lamp bases, and to make them so as to compress the plaster when screwing the lamp in, instead of pulling it apart. The improvement is, no doubt, a small one, but it seems to be useful. The defect it remedied was a troublesome one, and, so far as the evidence shows, Bergman's change of the relative position of the contacts seems to have overcome it. The various Edison companies at once began to use sockets with the contacts described and claimed in this patent, modifying the Edison lamps accordingly, and that construction became the standard construction for Edison's lamps and sockets, and has remained so down to the present day. For many years no one seems to have infringed, and it is only recently, when the business of electric lighting has grown to such dimensions that there is a profitable field for the manufacture of separate parts of the apparatus employed, that defendants have undertaken the manufacture of sockets suitable for operation with lamps having their contacts arranged as in the Edison, and

which are infringements of the Bergman patent. Several patents and publications have been introduced by defendant to show the prior state of the art, and support the contention that the Bergman device contains no element of patentable novelty. The Powell English patent of 1874 is the best of these references. None of the others are more suggestive than this. It is a device for an electric arc lamp, and a standard or suspending or mural support for the same. It shows the lamp base or stock screwed into a supporting socket. The screw ring provided one contact, and a spring plate in the lower part of the hollow in the socket provided the other contact, with the result that pressure or compression would be applied to a more or less extent to the base. Complainant's experts criticise the Powell patent as an anticipation by pointing out that it belongs to the art of arc lighting; that it is bulky; that it has never been found practically useful. The difficulty with it, however, and the same objection applies to all the other patents and illustrations introduced as anticipations, is that, although compression to a slight degree did result from screwing the lamp stock down onto the spring plate, such compression of the material of the stock between the screw ring and the end of the stock was not in the contemplation of the patentee, or pointed out in the patent as an improvement, or in any way suggested as a function of the arrangement of the parts. Naturally enough the Powell patent was silent on this point, for it was a matter of no concern whether the lamp stock was pushed or pulled. Its materials were, so far as the patent shows, tenacious and strong, and it made no difference to what strains they were subjected. The Powell patent suggests, not the desirability of arranging strains so as to compress the insulating material of the lamp stock or base, but how to obtain such compression. It needed, however, no prior patent to instruct any one that if a screw-threaded plug, with a projection on the end, is screwed into a hole, there will be compression of material between the screw thread and the end of the plug as soon as the latter impinges on the bottom of the hole. The merit of Bergman's invention consisted, not in showing to the world that if you had a screw thread on a lamp base, and a metal plate at the end of the base, with insulating material between screw thread and plate, you would secure the compression of such insulating material when you screwed it into a socket till it touched bottom; but in finding out that the cracking and disintegration of the plaster of paris bases of the older lamps was occasioned by tensile strain between terminals, and that this particular difficulty could be overcome, and the lamp's service improved by reversing the position of the terminals in both lamp and socket, so that the strain should be no longer tensile, but compressive. The record discloses no anticipation, and as we are satisfied that the improvement, although slight, was useful, the decree of the circuit court as to this patent is affirmed. In view of the results of these cross appeals, no costs of this court are allowed to either party.

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.

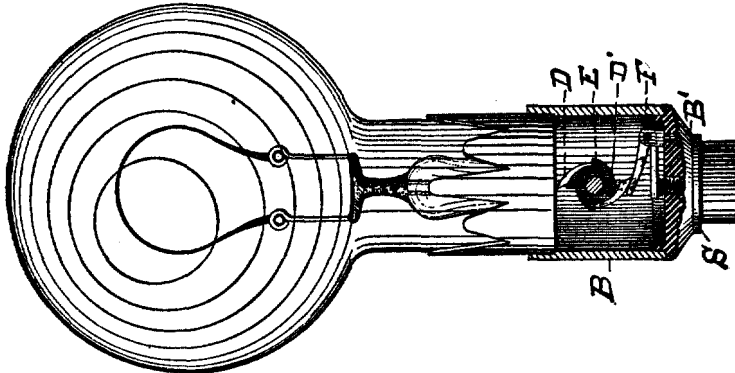
Appeal from the Circuit Court of the United States for the Northern District of New York.

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