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1939  
June 13.  
June 22.

BETWEEN:

NATIONAL ELECTRIC PRODUCTS } CORPORATION ..... }	PLAINTIFF;
AND	
INDUSTRIAL ELECTRIC PROD- } UCTS LIMITED ..... }	DEFENDANT.

*Patent—Infringement action—Combination patent—Lack of novelty—  
 Subject-matter—Equivalency.*

The action is one for infringement of a patent. The invention relates to improvements in the construction of electric conductors having a flexible metallic outer sheath or jacket, commonly known as armored cables or conductors. The Court found that the patent sued upon lacked subject-matter.

*Held:* That, though the device used by the patentee may be simpler and more convenient than those previously known and used for the same purpose, it is only an equivalent of a well known device and it did not require invention to place it in the combination, and it performs the same function in the patentee's combination as in previous combinations.

2. That in combination patents the invention must be found in the combination and not in the parts unless claimed.

ACTION by plaintiff to have it declared that, as between the parties, patent for invention No. 288,480 is valid, and has been infringed by the defendant.

The action was tried before the Honourable Mr. Justice Maclean, President of the Court, at Ottawa.

*O. M. Biggar, K.C. and M. B. Gordon for plaintiff.*  
*E. G. Gowling and G. F. Henderson for defendant.*

The facts and questions of law raised are stated in the reasons for judgment.

THE PRESIDENT, now (June 22, 1939) delivered the following judgment:

This is an action for infringement of patent No. 288,480, granted to the plaintiff, a corporation having its chief office in Pittsburg, Pennsylvania, U.S.A., in April, 1929, on the application of Otto A. Frederickson, the plaintiff's assignor, and the title given to the invention is "Improvements in Armored Electric Cables."

The invention relates to improvements in the construction of electric conductors having a flexible metallic outer sheath or jacket, commonly known as armored cables or conductors. Hitherto, it is said by Frederickson, cables of this general character ordinarily consisted of two or more insulated conductors enclosed in an interlocked covering of insulated material, such as braided or woven fabric, and about which a spirally wound metallic sheath was placed, but armored cables of such construction, it is said, were open to many objections.

In the installation of such armored cables as heretofore made the outer metallic sheath is cut off with a hack saw, or other tool, some distance from the end of the enclosed conductors, in order to make attachments of the conductors to electric fixtures, and in this operation, it is said, the workman was liable to injure the insulation on the

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conductor wires, and in any event the cut end portion of the metallic sheath would present burrs or sharp edges which would be liable to cut into the insulation, and thereby form short circuits. It is also claimed that metal slivers are sometimes formed upon the edges of the spirally wound strips of the armor and which are liable to work through the braided or woven fabric covering surrounding the conductors, and thus short circuit the conductors. Then, after cutting the metallic sheath in making electric connections, it is necessary to remove with a knife or other sharp instrument a short section of the braided or woven covering, between the exposed portion of the conductors and the end of the metallic sheath, and, it is said, this operation would be carried out at the risk of injuring the insulation upon the conductor wires, thus increasing the danger of short circuits. Such were the principal objections raised to this construction of electric cables.

Frederickson claims to have overcome these and other objections by his invention. In place of the braided or woven covering around the insulated conductors he proposes that there be wound spirally two fibrous strips of an insulating nature, such as strips of thin flexible paper that crumpled transversely into a soft round strand; the spiral coils of the strips are preferably laid closely together so that their edges overlap one another so as to form a smooth tight joint, which, it is claimed, makes it practically impossible for the metal slivers, of which I have spoken, entering the closed joints of this covering. Further, it is claimed, this covering fits snugly within the armored sheath, so as to prevent any sliding movement of the covered conductors within the armored sheath, thus preventing any chafing of the covering against the inner walls of the metal sheath. This spirally wound covering may be easily removed from the conductors by an unwinding action and this avoids any cutting operation, and thus any danger to the insulated conductors, as in the case of a braided or woven fabric covering. The unwinding of the cover may be extended down into the metallic sheath in order to provide sufficient clearance space to receive a bushing or sleeve which Frederickson interposes between the interior of the armored sheath and the insulated conductors. The bushing is thus easily inserted in the end of the armored sheath and provides a smooth sur-

face for the covered conductors, and protects the insulation upon the conductors from being injured by the burrs or sharp edges at the end of the armored sheath, the bushing having a flange at its outer end that abuts against the end of the armored sheath. The bushing is preferably formed of an insulating material so that should injury occur to the insulation of the conductors, the bushing will itself insulate the conductors from the metallic outer sheath. Another feature of the sleeve or bushing that is said to be of importance is that it is of a split tubular construction and may be readily inserted between the inner surface of the metallic sheath and the insulated conductors, in the space from which the paper covering has been removed, by contracting its diameter by pinching it, and this, it is said, could not be done, or if so not easily done, in the case where a braided or woven fabric was used as a covering.

In order to protect the insulated conductors against injury from the sharp edges occurring at the cut end of the metallic sheath it had been customary to place an exterior metal sleeve or ferrule about the end of the metallic sheath. It is claimed, however, that such exterior sleeve or ferrule was unsatisfactory because the metallic sheaths varied in size and spirality, and unless the sleeve or ferrule connected to the threaded or spiral portion of the outer sheath it was liable to be displaced, and defective electrical or mechanical connection resulted, and was the cause of trouble and annoyance. Further, it is said, that the exterior sleeve or ferrule increased the diameter of the armored cable or sheath and frequently prevented the enlarged end of the armored cable from entering the usual electrical fittings on the market, and special fittings with proper openings had to be provided. The purpose of the sleeve or ferrule and the bushing is the same, namely, the protection of the insulated conductors from injury at the cut end of the metallic sheath.

In Frederickson we have insulated conductors covered by two spirally wound strips of fibrous material, preferably thin flexible paper, all of which is enclosed in a flexible metallic sheath, and at the cut off end of the sheath there is inserted, between its interior and the insulated conductors, where the covering has been removed, a bushing or sleeve provided with a flange at its outer end

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and adapted to abut against the end of the armored sheath, and which will prevent the insulation of the conductors being cut or chafed by any sharp edges that might be formed at the cut off end of the sheath.

The plaintiff relies upon claims 2; 7, 8, 9 and 10. Claims 2 and 10 are typical and are as follows:

2. An armored electric conductor comprising, an insulated wire, a protecting covering of fibrous material surrounding the insulated wire, a metallic sheath or jacket enclosing the protecting covering and insulated wire, and a bushing of insulating material interposed between the insulated wire and the metallic sheath or jacket to protect the wire insulation from the edge formed at the end of the metallic sheath or packet.

10. An armored electric cable comprising, insulated electric conductors laid side by side, an armored outer sheath formed of a metal strip wound spirally about the conductors, a protecting covering surrounding and uniting the covered conductors and formed of insulating material laid in coils about the insulated conductors beneath the armored sheath so that one or more coils may be removed from the interior of the end portion of the armored sheath to form a bushing receiving clearance space, and a protecting bushing adapted to be inserted in said clearance space between the armored sheath and conductors and provided with a flange adapted to abut against the end of the armored sheath.

The defendant's flexible electric cable is comprised of insulated conductors around which there is spirally wound a covering of insulating material, composed of strips of flat waxed paper, and which is fitted within a spirally wound metallic sheath. The defendant contemplates the insertion of a bushing at the end of the cable which has been cut. The location of the bushing is unknown until the cable has been cut the desired length at the time of the installation, but each coil of cable sold by the defendant has attached to it a small bag containing a supply of bushings, substantially of the same construction and material as the plaintiff's bushings, and it is intended that these bushings be inserted by the purchaser in the cable between the interior of the metallic armor and the covering over the insulated conductors, at the end where the metallic sheath was cut during the operation of installation. Accompanying the bag of bushings is a printed notification that the bushings are to be used without removing the covering of paper, and, I think, there is no doubt but that the bushing may be inserted without removing the cover, but it would also appear that some workmen do not follow the instructions of the defendant in this regard and they remove the paper covering before inserting the

bushing in the cable. I think the defendant's electric cable is substantially the same as that of the plaintiff. If I were convinced that there was subject-matter in Frederickson I would be disposed to hold that there was infringement.

Frederickson has been the subject of litigation in the United States. In *National Electric Products Corporation v. Circle Flexible Conduit Co.* (1), the patent was held to be invalid for want of subject-matter. On appeal to the Circuit Court of Appeals, Second Circuit, the judgment of the District Judge was reversed and the validity of the patent was upheld, and infringement found, Chase J. dissenting. In the case of *National Electric Products Corporation v. Grossman* (2), the patent was upheld but no infringement was found, and on appeal the judgment was sustained. In both cases, the offending electric cables appear to me to be substantially the same as that of the defendant here.

The art of combining two or more parts, whether they be new or old, or partly new and partly old, so as to obtain a new result, or a known result in a better, cheaper, or more expeditious manner, is valid subject-matter if it is presumable that invention in the sense of thought, design, or skilful ingenuity was necessary to make the combination. The benefits of the patent laws are confined to inventions, and it is therefore necessary, in deciding whether a new machine or device or a modification of an old machine or device is good subject-matter for letters patent, to put to oneself the question: Does it involve invention? In combination patents that question is not always easily answered. The invention, if any, must be found in the combination and not in the parts unless claimed, and invention is not here claimed for any of the parts. If I put to myself the question whether patentable novelty, skill or ingenuity, is to be found in Frederickson's combination of parts I feel compelled to answer in the negative. Every element in the combination of Frederickson is to be found in previous combinations, that is, in electric cables, and their working is not essentially different, and I do not think any new result has been obtained. The insulating paper wound around the insulated conductors was much stressed before me but that

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was not an original use with Frederickson. That idea was earlier practised by Johnson of the American Metal Molding Company, and if there the paper were wound in a way different to that of Frederickson, or if any adhesive was used in the winding of the paper, that is of no consequence; and the question for decision still remains was there invention in combining the different parts found in Frederickson. The use of a flanged bushing or sleeve or some such equivalent device, for the purpose of protecting the insulated conductors from any sharp edges at the end of the cable which had been cut, was practised long before Frederickson, in various forms, but they were fitted on the outside of the metal sheath. Placing a bushing on the inside instead of the outside of the sheath, still leaves it a bushing, and there would be no difficulty in combining it with the other elements of Frederickson. Frederickson's bushing or sleeve may be simpler and more convenient than those previously known and used for the same purpose, but it is only an equivalent of a well known device and it did not require invention to place it in the combination, and it performs the same function in Frederickson's combination as in previous combinations. I do not think that there is invention in the combination of Frederickson over previous combinations or that it required invention to combine the elements there found into an electric cable, and on this ground I think the plaintiff's action must fail.

Mr. Gowling advanced the contention that Frederickson was not a true combination patent but was rather a mere aggregation of elements, each giving its own result, each performing its own function, and that they were not combined together so as to produce one result. While I recognize the force of this contention yet I refrain from making any definite pronouncement upon it; it is not necessary to do so in view of my finding that there is no subject-matter in the patent sued upon.

My conclusion therefore is that the plaintiff's action fails, and with the usual result as to costs.

*Judgment accordingly.*