

Case No. 4,949.

FORSYTH V. CLAPP ET AL.

[6 Fish. Pat. Cas. 528; Holmes, 278; 4 O. G. 527; Merw. Pat. Inv. 448.]<sup>1</sup>

Circuit Court, D. Massachusetts.

Oct., 1873.

PATENTS—PATENTABILITY—ANTICIPATION—CONSTRUCTION OF REISSUE.

1. McBurney having formerly prepared a tube from fibrous material and India-rubber in a certain manner, and cut it into rings for stuffing boxes, Forsyth's use of similar tubes upon shafts for the rolls in a wringing-machine does not entitle him to monopolize them as his invention.
2. He may have a patent for the combination of such tube with the shaft, although united in the same way that other tubes and shafts have been before united for the same purpose, provided new results are obtained. Two old elements combined in an old manner but producing a new result, are patentable.
3. Moulton's roll for a wringer consisting of fibrous material, of which the fibers are looped about a wire wound closely about the shaft, and run out from the shaft in a radial direction, the whole imbedded in India-rubber, which is thereby attached to the shaft, is not an infringement of the Forsyth patent.
4. Although a reissued patent may have claims so broad as to cover a defendant's device, yet the court will look beyond the claims, into the body of the specification of both the original and reissued patents, and ascertain whether there is any invention to support the claim.

[Cited in *Atlantic Giant Powder Co. v. Mowbray*, Case No. 624. Quoted in *Swain Turbine & Manuf'g Co. v. Ladd*, Id. 13,662.]

{Bill in equity [by James B. Forsyth against Charles M. Clapp and others] to restrain alleged infringement of reissued letters-patent [No. 5,081] for a wringer-roll, dated Oct. 1, 1872. The original patent [No. 101,994] was granted to the complainant April 19, 1870. The claim of the reissued patent was for "a rubber roll whose interior is composed of vulcanized rubber mixed with fibres, where the fibres are arranged substantially as above described;" i. e. (as stated in the specification), "so that they will extend through the rubber radially from the shaft." The principal question in the case was, whether the defendants infringed. The construction and operation of the complainant's and defendants' rolls are stated in the opinion.}]<sup>2</sup>

William Whiting and James E. Maynadier, for complainant.

Benjamin R. Curtis and George L. Roberts, for defendants.

SHEPLEY, Circuit Judge. Without at this time stating the conclusions at which the court arrived in relation to several questions presented in this case, it will be sufficient for the disposition of the cause to state the decision of the court upon the question of infringement. For a proper consideration of this question, it is necessary to consider the state of the art at the time of the alleged invention of Forsyth.

Rubber rolls for wringers were first made in the form of tubes or hollow cylinders, and expanded on to a plain shaft. Then attempts were made to secure the roll more firmly

to the shaft, first by winding the shaft with wire, and afterwards with twine. An effort was made to secure a more lasting union to the shaft by forcing the tube upon a heated shaft. Next followed a mode of making the shaft itself of two or more parallel rods. The rubber rolls first made with a number of holes corresponding to the number of rods were forced on to these rods, which were then connected at their extremities. Canvas was also interposed between the shaft and the roll, and cemented to both. Various other devices appear to have been resorted to for the purpose of fastening more firmly the tube to the shaft. The purpose of all of these inventions was to make a more perfect connection of the elastic roll with the metallic shaft.

The difficulty which Forsyth thought he saw, and which he claimed had not been obviated by any of the other devices, was not so much the separation of the roll from the shaft at the lines or points of connection, as the tendency of the strain on the rolls when in use to a destruction of the body of the roll itself.

His theory was, that while the connection of the shaft with the homogeneous body of the roll constricted on to the shaft was sufficient for all practical purposes in the use of a wringing-machine, the real difficulty to be overcome was, that the particles of rubber in contact with the shaft separate and tear away from the rest of the rubber composing the body of the roll. He acted upon the hypothesis that while the various connections of the roll with the shaft were sufficient to withstand the strain, a portion of the body of the roll would break away from the portion retaining its connection with the shaft by a process of disruption or rending asunder of the body of the roll itself. He commenced, thereupon, a series of experiments, the object of which was to substitute for the homogeneous rolls in use a roll with a tougher, stronger, and less elastic substance in the interior than in the exterior portion of the roll. After trying various methods to accomplish this result by the addition of fibrous or other nonelastic material to the stock of which the interior of the roll was composed, he finally constructed a roll with fibrous material arranged in the interior portion of the tubular roll in a manner which in an expression proximately descriptive he calls "radially." A sheet of cloth, with a thin layer of vulcanizable compound on each side of it, is first cut into long strips, "bias," or diagonally across the threads or fibres of the cloth. Several of these long strips are placed upon each other and pressed together until the surfaces of rubber or vulcanizable compound are cemented and permanently united. The sheet thus formed is cut into strips or bands of suitable width to admit of their being easily wound on a mandrel, or the shaft of a roll, in such a manner that the fibres of the cloth will radiate from the mandrel or shaft. As shown by the drawing accompanying his specification, it is obvious that each thread would thus extend from the interior to the exterior of the fibrous portion of the roll in a curved radial line, the threads crossing each other, and such threads being nearer together at the core or axis, and separated further from each other as the distance from the core or axis increases. The roll is then made up to the desired size by winding rubber sheets around it coated with cement, when it is placed in moulds and subjected to the vulcanizing process, the rubber in its soft and plastic state filling up all the crevices around and between the layers and incorporating the parts together. In this way it is claimed that "the tenacity of the roll and the degree of adhesion of the parts are much increased, and the position of the fibre is better adapted to resist any tendency of the roll to become loose and turn on its shaft when subjected to a strain."

Charles McBurney had invented and manufactured at the works of the Boston Belting Company a tube substantially, if not precisely, like the tube of Forsyth. No appreciable material distinction can be discovered between the modes of making the McBurney and the Forsyth tube, or in the tubes themselves when made on a mandrel. McBurney's tubes and their mode of manufacture are represented by Exhibits 10 to 14, inclusive. These tubes were made of all sizes, from three-quarters of an inch to several inches interior

diameter, and from one-half inch to an inch and a half thickness of tubing, and sold in tubes to consumers. The purchasers cut them in sections or rings for stuffing boxes. Such a tube constricted on to a shaft would be Forsyth's roll. Forsyth does not describe any particular mode of connecting the tube with the shaft. He leaves that to be effected by any of the old and well-known processes in use. All that can with any show of reason be claimed for his roll is the combination of an old tube with an old shaft, in a mode which was old, to accomplish a new and useful result.

Treating it as a valid patent for this new combination of an old shaft with an old tube by old means of connection, for the purpose of considering the question of infringement in the light of the state of the art as existing when he made his roll, we now proceed to examine the construction of the Moulton roll as actually made, and relied upon as an infringing device. The Moulton roll, as manufactured by the defendants, was made by applying transversely to a sheet, or between two sheets, of vulcanized rubber, a layer or range of strands of fibrous material, and cutting this sheet into ribbons of the desired width at right angles to the length of the strands. These ribbons are folded in the centre, and a metallic wire is enclosed in the fold and wound spirally about the shaft under great torsion, from end to end between the journals, the wire being fastened to the shaft at each extremity. A cylinder or sleeve of rubber is applied over the surface, and the whole is subjected to a vulcanizing process until the whole mass of the roll is thoroughly compacted together. The wire is so tightly wound under pressure, that it, in fact, becomes a part of the shaft. The fibrous threads are, in fact, loops which pass into one orifice and out of another in the metallic shaft, their ends extending strictly radially into the body of the roll.

There is a radical and obvious difference in the function of the fibres in the two rolls. Their similarity consists in the fact, that the fibres in one are arranged in curved, radial, diverging lines, extending in a direction towards the periphery of the roll, and in the other in radial lines extending in the same direction. In both of them the effect of the fibres is more or less to diminish the elasticity of the interior portion of the resilient roll; but in the Moulton roll, as made by the defendants, not to any material, or to a scarcely appreciable, extent. Their difference consists in the function which they perform.

The inner ends of the fibres in the Forsyth tube touch or nearly touch the shaft. They do not fasten the rubber compound to the shaft, or aid in fastening it. The ends of the fibres themselves are not fastened to the shaft except so far as they are cemented by the vulcanizable material. The vulcanizable material holds the ends of the fibres up to the shaft, instead of the fibres performing that function for the vulcanizable compound. The inner ends of the fibres in the Forsyth roll were attached to the rigid portion of the roll resting upon the shaft, and the outer ends extended from this rigid portion towards the circumference of the roll, thus tending to secure that "adhesion of the parts" of the roll to each other, at which he aimed, as well as to limit the mobility of the rubber into which they extend. If McBurney's tube, or Forsyth's, be constricted upon a shaft which is too small, or insufficiently cemented, or connected to the shaft by any of the then existing modes of connection in an imperfect manner, so that the shaft turns in the tube, that result would not be owing to the fact that the fibres of Forsyth failed to perform perfectly their function of confining the rigid portion of the roll to the more elastic portion of it, and of limiting the mobility of the rubber in which they are buried. So when the roll is subjected to strain by the passage of the sliver of cloth between the rolls of a wringer, causing the outer surface to be compressed in one place, and expanded in others, the fibres in the inner portion of the Forsyth roll do undoubtedly tend to prevent the body of the roll from being separated from the shaft; but they do not effect this result by reason of their attachment to the shaft preserving the connection between the shaft and the rubber, but by reason of their acting at the same time to preserve the form of the inner and more rigid portion of the tube, and keep up the adhesion of such parts with the outer portions where the mobility and resiliency is greater. But perfectly as the fibres may perform this function, a tube imperfectly cemented to the shaft may still, for that reason alone, turn on the shaft in the Forsyth roll. Now, the loops or bows in the Moulton fibres enter the shaft, and the ends of the fibres extend like "staples" (which they resemble in form) into the body of the roll, for the purpose of securing the interior of the resilient body to the shaft. The fibrous loop is to be taken as a whole. The parts of the fibres which extend from the interior towards the exterior of the rubber roll would not operate to confine the rubber to the shaft without the loops. By none of the methods in use at the date of Forsyth's patent, of making the connection between the shaft and the rubber, was the connection made any more tenacious by presenting the ends of the fibre to the surface of the shaft. In some of them the presence of the ends of the fibres lessened the adhesion by as much as it displaced the rubber. The principal function of the fibres in the Forsyth tube, as before stated, is to make the inner portion of the tube more rigid, and to tie the more rigid to the more elastic portion of the tube. Now, in the Moulton roll, as manufactured by the defendants, the principal function of the fibrous loops is to tie the rubber to the shaft, and they do not create any material rigidity in the interior portion of the tube. The method of fastening

in the Moulton roll is an inseparable part of the roll itself, being necessarily constructed and built up with the roll, and constituting the inner portion of the roll. It is not adaptable to Forsyth's tube, nor is Forsyth's tube capable of having Moulton's fastening applied to it. Because Forsyth borrowed from McBurney his method of constructing the interior of a tube with fibres of cloth arranged in radial curves, it would be the height of injustice to allow him to monopolize any use of fibres for any purpose whatever in a wringer-roll, if the ends of the fibres extended in a radial direction into the body of the roll. His reissued patent, examined in the light of the invention described in the original patent, if valid, must be limited to such a mode of introducing the fibres of a woven texture radially into the tube for the purposes indicated, without regard to the mode of fastening to the shaft.

The court will look beyond the mere form of words in the claim of a reissued patent into the specifications, in both the original and reissued patent; and even if on the face of the reissued patent it does not embrace any thing not described or suggested in the original, nevertheless, the court will ascertain whether there is any substantive invention adequate to support a claim ingeniously worded, not so much for the purpose of describing what the patentee really invented, as of grasping within its terms, some contrivance not within the knowledge or contemplation of the patentee, and for that reason, not by reason of inadvertence or mistake, not embraced in the claims of the original patent.

Comparing the two rolls, as we have done in some more essential particulars, and without recapitulating other points of difference, enough has already been stated to show, that so radically different is the structure of the rolls, and the function of the fibrous material, and its mode of operation, that the Moulton roll, as manufactured by the defendants, is clearly no infringement upon any thing secured to Forsyth by his reissued patent, even giving to the invention claimed in that patent the fullest scope claimed for it in the evidence of Forsyth himself, and the expert testimony introduced by him. Bill dismissed.

<sup>1</sup> [Reported by Samuel S. Fisher, Esq., and Jabez S. Holmes, Esq., and here compiled and reprinted by permission. The syllabus and opinion are from 6 Fish. Pat. Cas. 528. and the statement from Holmes, 278. Merw. Pat. Inv. 448, contains only a partial report.]

<sup>2</sup> [From Holmes, 278.]