employ it, but his employment of it in the modes or through the instrumentalities by which it is applied in nature is a mere imitation of what every man is able to perceive and reproduce as well as he. All endeavors to confine it to himself are at once futile and unjust. It exists for all men, as well after his discovery as before. The laws necessarily recognize and protect this right, and do not permit any man to exclusively use the conditions which are the gifts of nature, simply because he was the first one to discover its value. Not until some new instrument or method is contrived for its direction towards ends which it cannot naturally accomplish does his creative genius manifest itself. 1 Rob. Pat. § 136 et seq.; Detmold v. Reeves, 1 Fish. Pat. Cas. 131, Fed. Cas. No. 3,831; Morton v. Infirmary, 2 Fish. Pat. Cas. 320, Fed. Cas. No. 9,865; Morton's Anaesthetic Patent, 8 Op. Attys. Gen. 269. The court did not err in sustaining the demurrer. The judgment of the circuit court is affirmed, with costs.

AMERICAN DUNLOP TIRE CO. v. ERIE RUBBER CO.

(Circuit Court, W. D. Pennsylvania. January 28, 1895.)

1. PATENTS—LIMITATION OF CLAIMS—STATEMENT OF BEST METHOD.
   A statement in the specifications that in the best methods of applying their invention the patentees use a supplemental device there described, is not to be read, as a limitation, into a claim which contains no reference to it, especially when the significance of its omission is emphasized by its incorporation into a subsequent claim.

2. SAME—INVENTION—INFRINGEMENT—PNEUMATIC TIRES.
   The Brown and Stillman patent, No. 488,494, for a pneumatic tire containing an inflatable tube, and made inextensible circumferentially by means of circumferential enforcements along two lines within the edges and above the bottom of the groove, whereby the tire is made to seat itself on inflation and the necessity for mechanical connection with the rim is obviated, construed as to the first claim, which is *held* to show patentable invention, and to be infringed by the Moomey patent, No. 513,617.

Duncan & Page, for complainant.
Hallock & Lord, for defendant.

BUFFINGTON, District Judge. The American Dunlop Tire Company file a bill against the Erie Rubber Company for alleged infringement of the first claim of letters patent No. 488,494 (now owned by complainants), which was applied for June 20, 1891, and issued December 20, 1892, to Alex. T. Brown and George F. Stillman. The subject-matter of that patent and of the present bill is a pneumatic tire, which is so named from the fact that it is inflated with air, to form a cushion which lessens jars in passing over uneven surfaces. In bicycles, iron tires were first used; later came solid rubber ones, and these in time were succeeded by the pneumatics. Prior to the patent in suit, these latter were of two general kinds,—"hose pipe," tires or endless tubes of canvas or India rubber, usually cemented to the rim; and "double tubes," which consisted of an inflatable tube within an outer, nonexpansible shoe or covering divided longi-

tudinally, and having its edges detachably connected in some way with the rim of the wheel. By using this outer shoe there was less liability of puncturing the interior air tube, but when this was done it was a matter of difficulty and expense to reach the latter to repair it, the outer one being either mechanically secured or cemented to the rim. This difficulty was in a measure overcome by what are known as "clincher tires," where the edges of the shoe and the rims of the wheel were adapted to dovetail or interlock with a hook joint when air pressure was applied to the inner tube. This style of tire is shown in the Jeffry patent, No. 454,115, of June 16, 1891 (record, page 430). The alignment of tires was also a matter of difficulty and expense. To obtain and maintain perfect alignment, the tire must be kept from lateral motion in the rim. To fix the cover in place before inflation required accuracy of adjustment in the various parts, and the absence of such accuracy resulted in a distorted tire when the tube was inflated. In the clincher type, rims with grooves were generally used, and the tires were aligned in them by various forms of clamping devices. These difficulties were largely overcome by the patent in suit. By a device, at once simple and effective, easy access is had to the inner tube, and automatic alignment also secured. In it we have an exteriorly grooved rim with divergent flanges; an outer shoe confining an inflatable tube, seated partly within the grooved rim, and made nonextensible circumferentially (preferably by endless wire in its edges) along two lines on opposite sides within the edges, but above the bottom of the groove. When the inner tube is inflated, the shoe moves upwardly and outwardly until a line is reached on the rim of a circumference equal to the nonextensible circumference of the shoe, at which line on the rim the shoe seats itself, and is there kept by internal air pressure. It is thus seen that no permanent connection is needed between the rim and shoe, and when the tube is deflated the shoe may be readily removed from the rim by a process similar to unbuttoning if the circumference of the nonextensible wires be properly proportioned to that of the flange of the rim. In the best method of applying the principle as stated in the patent, the patentees made use of an intermediate "supplemental groove," "offset," or "shoulder," "up into or onto which" the wires are forced by air pressure, and there seated and retained. These grooves are not specified in the claim now before us, nor are they used in either complainant's or respondent's device, as practice has shown they are not essential. The first claim—the only one on which we are asked to pass—is:

"In combination with an exteriorly grooved rim having divergent side edges or flanges, a tire comprising or confining an inflatable tube, seated and contained partly within the grooved rim, and made rigid or inextensible circumferentially along two lines, lying within the groove below the edges, but above the deepest part of the same, by means of circumferential re-enforcements secured to or incorporated with it, and adapted to be held in place in the rim by the action of the internal air pressure."

This general form of tire quickly came into common use. The proofs show they were first used in the latter part of 1892, and that in the first few months of 1893 30,000 of the Dunlop detachable form

were sold by the American Company and 150,000 pairs by the English branches. Tires constructed on this principle do away with all permanent connections between rim and shoe, are capable of being quickly slipped on or off the rim without the use of any mechanical appliances, and, during process of inflation, in a measure, automatically align themselves. We are of opinion that the difficulties overcome by the patentees and the advance they made over former methods are such as stamp their device as of a meritorious character. Conceding, for present purposes, the separate elements which the patentees combined had been known before, yet it must be granted they so united them and placed them in such new relations as to produce a novel and useful result. Indeed, the respondent's expert himself says:

"In considering the question of novelty, I find, by an examination of the state of the art as revealed by the patents which are exhibits in this case, that the older inventors did not seem to have thought of the idea of holding the edges of a pneumatic tire of the U-shaped pattern in the groove of a rim, except by the application of some adjustable clamping device; because the edges of the tire must be stretched in passing it over the flanges of the rim, to place it in position. So far as I know, Brown & Stillman were the first to conceive of a construction of tire and rim provided with supplemental side grooves whose diameter, relatively to the diameter of a deeper central groove and the diameter of the flanges, is such that a tire, the edges of which are permanently re-enforced, and have a diameter corresponding to the supplemental grooves, is capable of being removed from the rim and replaced again without disturbing or adjusting the re-enforcement of the edges."

We next inquire, does the respondent's device infringe this claim? In it we find an exteriorly grooved rim with divergent side flanges, shaped thus: ⌣, and not having supplemental grooves. An inner inflatable tube is used, and an outer shoe, the outer edges of which have lips or flaps which fold back upon the main shoe. At the juncture of the shoe side and each flap is a circular hollow, or pocket, adapted to receive several laps of a stout linen cord or binder. This cord is provided with knots, and is tightly wrapped when the tire is deflated, each lap overlapping the preceding one, and the cords being twisted and intertwined at the final, and sometimes at the preceding, laps. When the shoe and lip are in close contact from inflation, a closed circular binder recess is formed, the shoulder or upper segment of which is part of the flap. Patent No. 513,617, issued January 30, 1894, to Joseph G. Moomey, in accordance with which this device is made, thus alludes to the binder and its workings:

"The flaps are made of gradually increasing thickness from the seat of the binder outward, so that, when the flap is in place, the circumference of its upper edge increases from the seat toward the outer edge. This makes the flap triangularly shaped, where the rim is shown as in Fig. 1, the sides being on the rim and the flange, and the largest triangular side of the flap uppermost. With this construction, the binder, as the tire is inflated, slides or rolls upon this increasing thickness or circumference of the flap, so that whatever slack or give there is to the binder is taken up, and the flap as a whole is held tightly in place. This feature is clearly shown in Fig. 1, the right side showing the position of the binder when first put in place before the tire is inflated, and the left side of the figure showing the position assumed when the tire is inflated. * * * The annular shoulder, b^1, on the upper side of the flap, forms the upper wall of the binder recess, b^5, and stops this slipping

or rolling movement at the greatest diagonal thickness of the flap. * * * In this construction (Fig. 3) the gradually increasing circumference toward the outer edge of the flap is given to the flap by the shape of the rim. From this it will be seen that the essential property of this feature is that the upper side of the flap should gradually increase in circumference from the seat on which the binder is placed, while the tire is deflated, toward the outer edge of the flap, so that the binder can roll or slip up on the flaring surface of the flap, so as to take up the give or slack."

The respondents allege there is no infringement in this device; that the supplemental groove described in the Brown & Stillman patent are not found in their device; that they do not use the endless bands of that patent; that their shoe cannot be taken from the rim without taking off the binder, and that this is one of the essential features disclosed by complainant's invention; that their binder clamps the shoe to the rim, does not perform the function of complainant's endless bands, and is not a mechanical equivalent thereof. It is clear to us from the proofs and our own observation that when the inner tube of a double-tube tire is inflated, the rim forms a permanent base, and the pressure on the outer shoe is exerted upwardly and outwardly. The resultant of these two pressures finds vent in the tire blowing off at the flange of the rim, or is overcome by some countervailing pressure from the rim or base of counter force. It follows from this that, where the edge of the shoe is made inextensible circumferentially, the air pressure will keep moving it upwardly and outwardly until its inextensible circumference finds its corresponding counter circumference on a permanent base, and there it will seat and adjust itself; that is, where a corresponding line or circumference is reached on the divergent flange of the exteriorly grooved rim. This being the case, it follows that the presence or absence of a supplemental or intermediate groove becomes a matter of indifference, so far as seating is concerned, in applying the principle disclosed by the patent. If the shoulder of the supplemental groove is of greater diameter than the supplemental groove depression, it is clear the shoe will not seat itself in such depression when it has already been carried over the larger circumference of the shoulder, but will continue its movement until it reaches its corresponding counter inextensible circumference further out and up on the diverging flange. It seemed to the patentees the best results were had by the use of a supplemental groove or seat, but the mechanical application of the principle disclosed by their patent showed that such groove was not essential, and, unless such a limitation was carried into their claims, it is clear they should not be clogged with it from the suggestion of its use made in the specification. In point of fact there is no such limitation in the first claim, and the presence of such limitation in the third further emphasizes the significance of its absence from the first. It is to be noted, too, that while it is mentioned in the specification as being used in the suggested form of applying the principle, yet it is not even referred to when "the chief characteristics" of the invention are summed up as follows:

"The improvement subject of our application, and by which this object is realized, involves as its chief characteristics—First, an exteriorly grooved rim, with divergent side edges or flanges; and, second, a tire comprising, or

confining an inflatable tube, seated and contained partly within the grooved rim, and made rigid or nonextensible circumferentially along two lines on opposite sides which lie within the groove, below the edges, but above the bottom or deepest part of the same."

It is clear to us that the element of a supplemental groove is neither expressly nor impliedly incorporated in the claim now being considered. The same reasoning applies to the contention that the patent of complainant only covers a device where the shoe can be taken from the rim without unfastening the binder. It is true that in speaking of the suggested form of application, the specification says:

"It further obviates the use of tightening appliances or accessories other than those required for inflation, or any manipulation of the same in the operation of applying the tire to or removing it from the rim. * * * These bands 2 are of greater diameter than the wheel rim at the bottom of the groove therein, and less diameter than the side edges of the rim. * * * The distance between the bottom of the groove in which the one part of the tire is already contained and the other edge of the diametrically opposite part of the rim is less than the internal diameter of the wire re-enforced edges of the tire. * * * We prefer that the bands be welded to be continuous or that the ends thereof be connected by suitable means, so that the tire may be adjusted to the proper fit upon the rim, but not to be used in removing the tire from or attaching it to the rim, and in the claim in which these bands are referred to as endless bands, we do not limit ourselves to a welded band, but regard as within our invention a band, the ends of which are connected in any manner."

Conceding that these in themselves would be limitations in the respects contended for, and granting (what is by no means clearly established by the proof) that the cords in respondent's device, as ordinarily used, were so tightly wrapped as to prevent the shoe being removed when the tire was deflated, yet the fact still remains that, while such limitation is found in the fourth claim, it is not in the first, and we are of opinion that such limitation cannot be carried into it by implication.

As we have seen, the mechanical clamping of the shoe to the rim was one of the difficulties existing before complainant's patent. It is contended the cord of respondent's device clamps the shoe to the rim, and that such device belongs to the general type of tires of that kind in use before complainant's patent. It must be remembered that the practical object of any kind of attachment between shoe and rim is to have it perform that function when the tire is inflated and in use. The severe lateral strains to which it is subjected in making sharp turns, its liability to "creeping," or having the rim turn within the shoe, make its condition at the time of inflation the test of successful function capacity; in other words, it is a question of ultimate, rather than initial, function. The test is not, what function does the cord or binder perform with a deflated, but with an inflated, tire. Conceding, for present purposes (what is, at best, left uncertain by the proofs), that the cords of respondent's device can be wound tight enough to secure it fixedly to the tire, it is evident that, as inflation proceeds, the cord does not retain its initial position. The statements quoted from the Moomey patent, and others that are not cited, concede, what is indeed apparent, namely, the stretching and slack

of the cord, its tendency to roll (which is the upward and outward movement under increased pressure), this rolling and distention of the cord being finally limited by the frictional contact of its parts, and the pinch of the flap and shoe, and its finally finding "its true position on the flap" (and therefore on the rim) "as the tire is inflated." Such being the facts,—and we see no way of avoiding them,—it is manifest that at the proper time of functional test the cords of respondent's device produce the same results as complainant's endless bands, in substantially the same way. The slack or give in the cord has been taken up; they have reached the limit of expansion; they have become, for the time being, for their functional purpose, endless bands, and are inextensible circumferentially; and a permanent position of the parts is maintained by internal air pressure. To use the language of the claim in question, they have made the shoe inextensible circumferentially along two lines lying within the groove below the edges, but above the deepest part of the same by means of their circumferential re-enforcement, incorporated with the shoe, and all adapted to be held in place in the rim by the action of internal air pressure. That their device may be an improvement upon respondent's, that the cord may have additional functions to the one just noted, that their device may disclose a further advance than complainant's, might, for present purposes, be conceded, yet even these facts would not free the respondent from the claim of the dominant patent. To our mind, infringement has been clearly established of the first claim, and a proper decree must issue in favor of the complainant and against the respondent.

YOUNG REVERSIBLE LOCK-NUT CO. v. YOUNG LOCK-NUT CO.

(Circuit Court, D. New Jersey. March 1, 1895.)

PATENTS—PRELIMINARY INJUNCTION.

A preliminary injunction will not be granted where defendant shows that the patentee, before making the assignment upon which complainant bases its right, executed an irrevocable power of attorney to a third person, giving full powers as to the sale and disposition of the patent; and that defendant contracted with such attorney to purchase the patent upon time payments, with the right to operate under it in the meantime by paying royalty; and that the payments had since been fully made, and the patent delivered, although no formal assignment had been executed.

This was a bill by the Young Reversible Lock-Nut Company against the Young Lock-Nut Company for infringement of a patent. Complainant moves for a preliminary injunction.

Edwin H. Brown, for complainant.
Alexander Thain, for defendant.

GREEN, District Judge. This matter comes before the court upon a motion for an injunction pendente lite, to restrain the defendant from infringing letters patent No. 447,224, granted to Levi H. Young, February 24, 1891, for "improvement in lock nuts." The