

THE CAPTAIN

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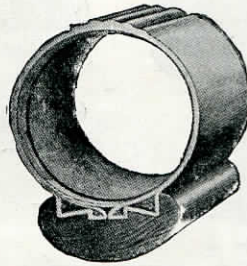
GEORGE NEWNES, LIMITED, 7 to 12, SOUTHAMPTON STREET, STRAND.



CONCERNING TYRES.

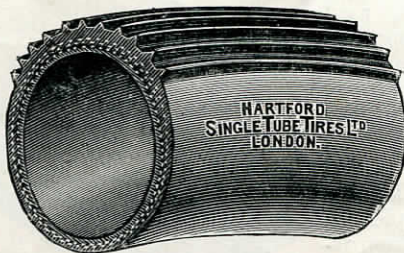
So important is the part played by the tyres in the composition of a modern bicycle that it may be said without any hesitation that at least three-quarters of the riders of to-day owe the fact that they are riders at all solely to the evolution of the modern tyre. When we remember that only ten or a dozen years ago the pneumatic tyre was a new thing, we can see at a glance how great has been the progress made. As everybody knows, the pneumatic principle was discovered by an Irish veterinary surgeon named Dunlop; but neither he nor anyone else knew the value of it, nor what it was destined to accomplish. To speak correctly, he re-discovered it, for the pneumatic tyre had been patented as early as the year 1845; the specifications then lodged being very similar to those of Mr. Dunlop. But they were never employed to any useful purpose, and they were

trying to do was to make riding more comfortable. He was not aiming at increased speeds, and the fact that he attained them was what I may describe as an accident. At first it surprised everybody. A similar accident had previously rewarded the inventor of chain driving, as applied to the bicycle. The only thing aimed at in that case was safety, the old "ordinary" having been in many respects a dangerous mount. The great increase of speed which also resulted from the use of the chain astonished everyone, and old riders were at first so incredulous that for a year or two great numbers of them went on buying the old tall machines.

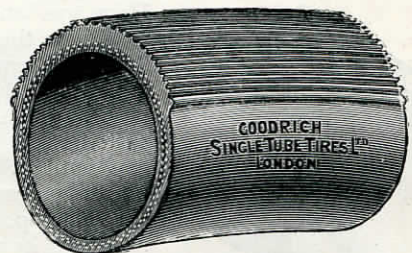


"G & J." TYRE.

In almost everything connected with cycling the proof of the pudding is on the racing track, because it is there that, under scientific conditions, men try to get the last inch out of their



HARTFORD SINGLE-TUBE TYRE.

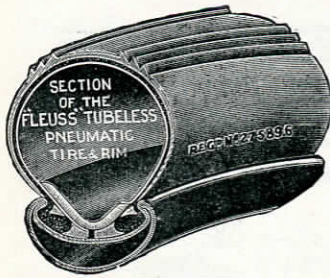


GOODRICH SINGLE-TUBE TYRE.

allowed to lie in the limbo of the Patent Office for upwards of forty years.

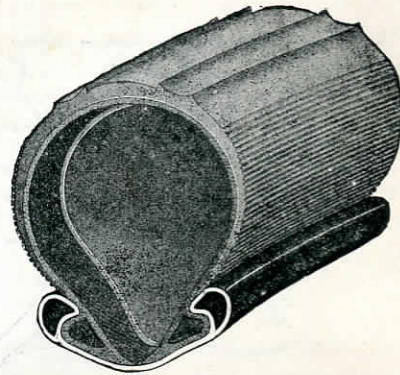
When Mr. Dunlop made his first tyre, he had not, as I have said, the slightest idea of the importance of his achievement. All he was

steeds. The value of the safety was proved to the world in this way; and so also, in its turn, the pneumatic tyre was demonstrated before the world as an adjunct that conferred new speed upon the rider. Mr. Dunlop's first tyre was



FLEUSS TUBELESS TYRE.

a very bad one. It was clumsy; it was complicated; it was what we should now call "slow"; it was easy to puncture, and it was difficult to repair.



CLIPPER TYRE.

Any one of such a list of indictments would be sufficient to effectually bar the way of any tyre inventor to-day; but that is because we have gone so much further along the road of progress. The original Dunlop, with all its faults, yet constituted the last step towards the completion of the "boat of air and steel" which should possess the magic property of being able to "float over brickbats and flow through stones."

The new tyre became the centre of one of the most remarkable romances that the world of invention has ever known.

Mr. Dunlop parted with the rights of his invention before it had achieved the well-deserved fame in store for it, and he did not profit to any great extent. Only a few years later the patent changed hands

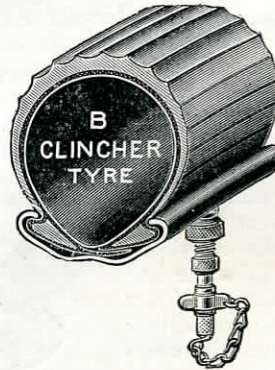
for £5,000,000! Here was an idea so simple that any Third Form boy might have thought of it, which suggested itself to no one until it came by happy chance to Mr. Dunlop. And such was its world-wide utility that within a few years scores of men had made fortunes through being concerned in the manufacture and

distribution of the articles to which it applied. There were, of course, many imitators soon in the field.

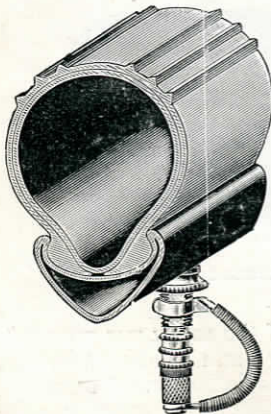
The majority of them simply took French leave and openly copied the genuine invention. About the year 1896 there were at one and the same time as many as 150 actions for infringement of the patent all waiting to be tried. The result was that all the tyres that were mere imitations ultimately disappeared from the market, leaving

only those which showed useful variations or good improvements that were their own legitimate property. To-day there are plenty of good tyres to be had, all of genuine merit, and I propose to talk about a few of them.

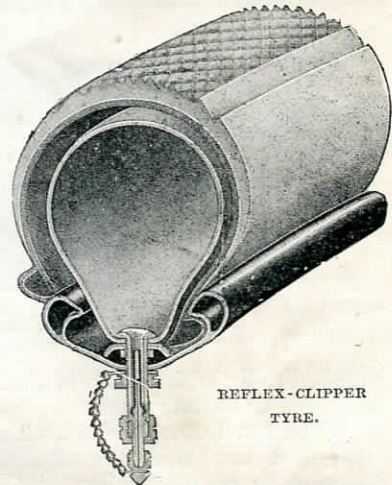
Taking the oldest first, we find that the Dunlop is typical of an important group. It consists of two main parts — as nearly all tyres do. The one is



CLINCHER TYRES.



PALMER TYRE.

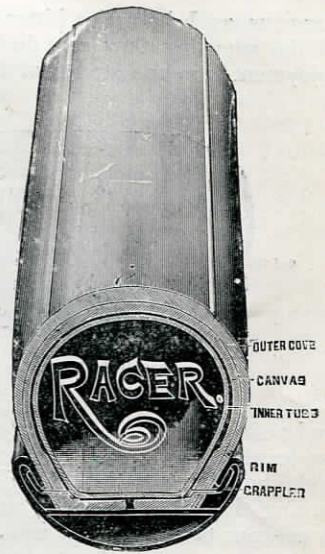


REFLEX-CLIPPER TYRE.



the inner tube, or air chamber. Normally, it is air-tight; but it is furnished with a valve through which air can pass in one direction — namely, inwards — by means of pumping. The inner tube is light, thin, and flexible, and could easily be blown up to bursting point. That this shall not occur in practice an outer cover is provided. The outer cover is for all practical purposes un-stretchable, so that, however intense the pressure of the air in the inner tube, the

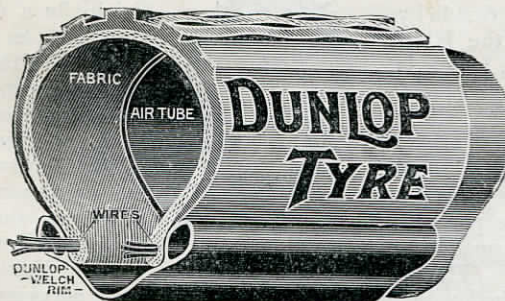
side of a hoop is pushed down into the bed of the rim the other can be coaxed over the rim edge at a point opposite. It is because air pressure from within acts equally all round that the hoops can never be blown off by air pressure.



GRAPPLER RACING TYRE.

latter is held firmly within dimensions at which it is subjected to little or no stretching

strain. But the outer cover fulfils a second function. It protects the inner chamber from injury, and its construction is such that it is capable of resisting a very considerable amount of external attack. Touch the inner tube with a bit of pointed glass, and it is liable to spring a leak at once. Yet it is possible

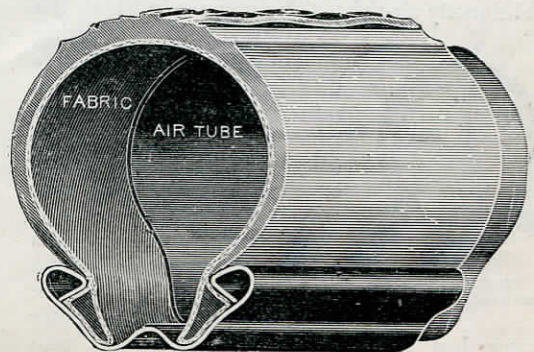


THE DUNLOP-WELCH TYRE.

sometimes to run over a hundred spikey bits under the pressure of the full weight of rider and machine and still not seriously wound the outer cover. Thus the strong protects the weak. But the feature of the Dunlop is its method of attachment. It is evident that with a tightly-blown air chamber there is a considerable force tending to blow the outer cover off. This force is restrained by reason of the provision of two hoops of wire — one passing round each edge of the cover. The hoops are made smaller than the extreme circumference of the rim, and as they cannot be perceptibly stretched they cannot be forced over it. Indeed, to get them off, and to put them on, requires a little gentle persuasion, and can only be accomplished owing to the fact that they are larger than the circumference of the bed of the rim. Hence, if one

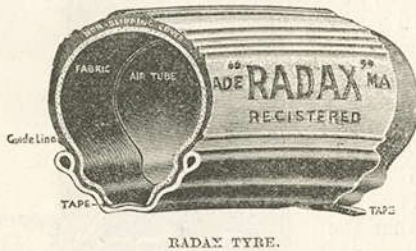
noble reaches between city and city for a hundred leagues. Their country roads are

There are, of course, tyres which are not made up of these two separable but inter-dependent parts. They belong to the class known as single-tube tyres, and come principally from America. They are much in vogue in the United States on account of their lightness, and their suitability to the kind of riding to which the American cyclist is almost exclusively confined. You see, American riders have nothing like our glorious English roads stretching in



The Welch-Bartlett Tyre.

atrocious, as I know by bitter experience, and all the wheeling they can do with any sort of enjoyment is in the streets of the towns or the



RADAX TYRE.

parks of the suburbs. Here, of course, punctures are less likely to occur than on the open road, and should a mishap befall assistance in repairing is generally near at hand. Hence Americans take the risk of using tyres somewhat liable to puncture and not always easy to repair, since in return they obtain a lighter and faster article. English riders similarly situated, who never intend to tour, might do the same. Of single-tube tyres some of the best known are the "G. & J." (made by Messrs. Gormully & Jeffery), the Hartford tyre, and the Goodrich, which is an English production.

There is another English firm, albeit bearing a German name, which manufactures a well-known tyre that is all in one piece; but this is not strictly a single-tube tyre. It is more properly described by the firm's own appellation—the Fleuss tubeless tyre. This is really an outer cover furnished with an ample lip or flap along one of its edges. The arrangement is such that when the whole is placed in position and inflated it becomes a tube by rolling tightly over upon itself. The coating of the flap with soft soap makes the chamber thus formed additionally air-tight. The manner in which the Fleuss is kept from blowing off is quite different from that of the Dunlop, but rather resembles the contrivance in the Clincher class of tyres. The Clincher is an excellent type of tyre, and we will pass on to consider it.

Unprovided with any hoops of wire, it would blow off the moment it was inflated but for the fact that the outer

cover has thickened edges which fit into grooves in the rim. The thickening is not equivalent to the wires in principle, but

only in effect. The outward force would be sufficient to drag the thickening out of the grooves were it not for the fact that pressures in fluids act equally in all directions. You see, there is not only an outward air pressure of great force acting on the tread, but there is simultaneously an equal pressure forcing the edges firmly into their grooves. Any boy who knows a bit of natural science will be able to see this. Will it be believed that the expert scientific evidence upon the point, given during a lengthy trial as to whether this arrangement infringed the Dunlop patent, was so conflicting that the judge postponed his decision until he could get an independent scientific opinion for himself? Fortunately, the independent expert saw the point and was able to make it quite clear to the learned judge.

Of tyres of the Clincher class a very admirable one is the Palmer. It is one of the lightest and fastest on the market. Originally a single-tube tyre, it was very liable to puncture. To overcome this defect the makers of it entered into an arrangement enabling them to make outer covers for it on the Clincher plan, and it holds its own to-day as one of the best tyres going. The tread of the Palmer tyre is admirably designed to resist sideslip, the ever-present danger of muddy roads and wet tramlines. Varying thicknesses of tread

are employed, according to the special uses to which the tyre is destined to be put. The very thin ones are not to be recommended for work outside the racing path, for, although they are wonderfully fast, they are not sufficiently sturdy to withstand the rough work of the road. You



RADAX TYRE ON CONTINENTAL RIM.



RADAX TYRE ON HOLLOW RIM.



RADAX TYRE ON WESTWOOD RIM.



WOODSTOCK TYRE.

can tell the thickness of the tyre by the letter it bears—the further along the alphabet the heavier, and, of course, the less fast. Very

cautious riders go in for Palmer "E" tyres, which the manufacturers only intend for use on tandems. But for my own part I have found a Palmer "D" an excellent working tyre over a trial of thousands of miles of road and lane. It is strong enough for all but exceedingly heavy riders, and has plenty of life and speed. For the front wheel a Palmer "C" will in most cases be stout enough for ordinary riding and touring. The Clipper and Clipper Reflex are excellent tyres, in which the Clincher principle of attachment is employed. The Warwick, on the other hand, makes use of the Dunlop principle with a modification. There is a coupling in the endless wire hoop which enables it to be made larger for purposes of detachment, so that it will slip over the edge of the rim without any coaxing.

A few other tyres have special attachments of their own. The Woodstock and Fleetwood tyres are so made that the edges of the outer cover hook securely together, so that it is impossible for them to come undone, and yet detachment is by no means difficult. The Grappler is so named from the way in which a grappling device enters a deep groove in the rim at a re-entering angle; and there are various other devices which are all good in their way. But one of the most remarkable is a late comer, called the Radax tyre. It is unprovided with any wires or thickened edges, and yet it holds the harder the tighter it is blown. At first sight the thing seems impossible, but it is clear enough when you are told how. The fabric with which nearly all outer covers are lined—be it canvas or what—is in this case woven on a special and very ingenious plan. The warp runs all round the tyre, and the central threads of the tread are longer than those at the sides, so that the tyre is made the actual curved shape it will be when inflated. Then the weft threads do not all of them go all across, but are so arranged that when the strain of inflation is set up the tendency is to expand the tread and contract the edges, which consequently obtain the required grip of the rim. It will be seen that no special rim is required. The Radax outer cover will fit any steel rim extant, and on this ground is an excellent thing for re-shoeing an old machine upon which you hesitate to place a more expensive cover. It is one of

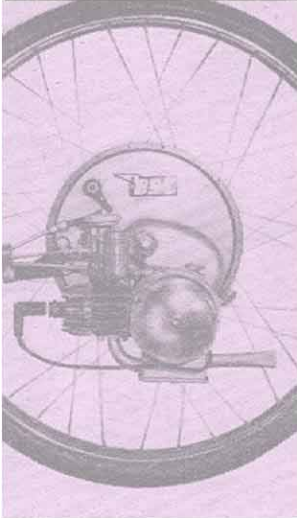
the cheapest covers going, and can be bought anywhere for about 16s. Palmer, Clincher "A," and Dunlop would each cost about 25s., while the next in order of their cost would be Fleuss, Warwick, Clipper, and Clincher "B." No one need go short of a good tyre with such a choice as I have set before him.

"CAPTAIN" CLUB CORRESPONDENCE.

I am constantly receiving requests for information and advice upon all sorts of cycling matters, and these it is, of course, quite impossible to answer through the post. It has, therefore, been decided to devote a limited amount of space to the answering of such queries as are of general interest. It is only necessary that my correspondents comply with a few simple conditions. In the first place, before you ask anything, be sure you cannot answer it without troubling me. I do not mind any amount of trouble if it is something you can't find out, and that you think I may be able to tell you. But I want specially to help those who help themselves. Don't ask how far it is from London to Oxford, or whether spokes are made of steel, because a map or a road book will answer the one question, and the nearest cycle repairer will tell you about the other; but ask sensible questions, and I'll do my best. Then be sure to write very clearly, and at the end put your name and your full address. You may sign with initials or a fancy name if you like, but, if so, you must put your own name as well. It won't, in that case, be printed, but it will serve its purpose in telling me who and where you are, and we shall feel that in a sense we know each other. Lastly, mark your envelope "Cycling," so as to save the clerks at the office trouble. You will see, by the way I begin, that I can't spare much space for anybody, and where the question is of no possible interest to anyone but the sender, I shall not trouble to indicate in my reply what it was all about.

E.H.F. (DURHAM).—You will find the vibration from the handlebar much lessened if you ride with the front tyre blown a little short of tight, but don't do it in wet weather. **"Tubes"** (MUCH WENLOCK).—Wooden rims are not likely to come into fashion again. Note what I say elsewhere. **R. (HULME GRAMMAR SCHOOL).**—You should not attempt to keep up with your friends if it makes your heart beat and you have to pant. If you ride within your strength, and ride well, you will, as you grow older, get stronger and faster bit by bit. But forcing the pace will never improve you. The best working rule for social rides is that the weakest rider sets the pace. **Flora (MARYLEBONE).**—(1) Yes, certainly. (2) Elastic-sided boots are quite unsuitable; you should have shoes. **"Hard and Fast."**—You have omitted your address, so that in saying "Yes" to you, I give you more than you are entitled to.

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