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WOVEN WRAPPER FOR TIRES.

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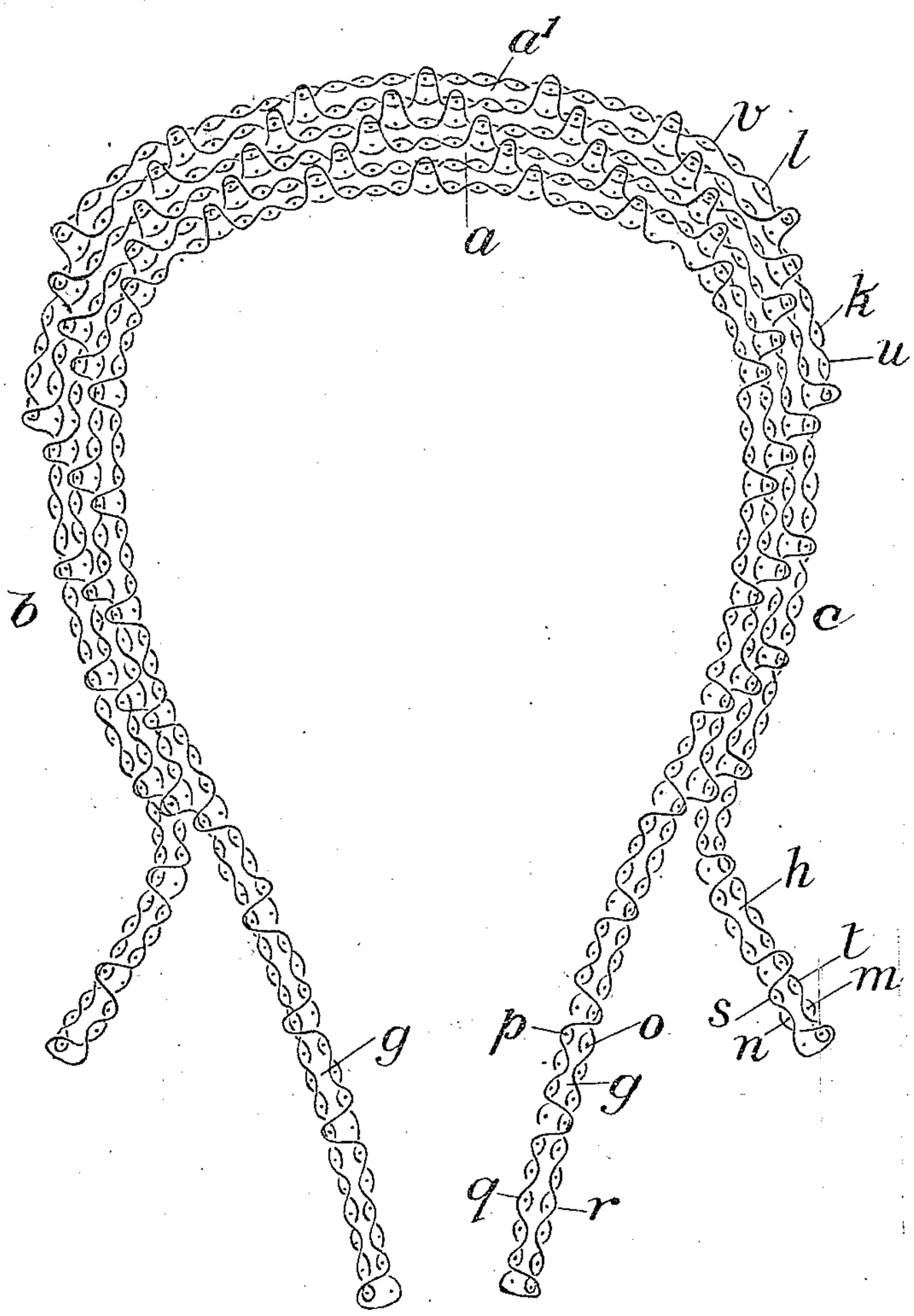
943,557. Patented Dec. 14, 1909.



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UNITED STATES PATENT OFFICE.

JUAN MARCET Y MARTI, OF TARRASA, SPAIN.

WOVEN WRAPPER FOR TIRES.

943,557. Specification of Letters Patent. Patented Dec. 14, 1909.

Application filed September 4, 1907. Serial No. 391,749.

To all whom it may concern:

Be it known that I, JUAN MARCET Y MARTI, a subject of the King of Spain, residing at Tarrasa, Spain, have invented certain new and useful Improvements in Woven Wrappers for Tires; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The wheels of bicycles, automobiles and other vehicles are usually provided with pneumatic tires having an air chamber more or less well protected by covers of rubber alone or of rubber combined with sheets of cotton cloth, or by wrappers of cloth cut from the piece and formed in the shape which corresponds to the section of the tire, and having numerous corrugations at both sides. In other vehicles there are also employed rubber tires very often without a protecting ring or wrapper at all, or tires of solid rubber which are covered with wrappers of cotton cloth or other material. In all these cases, when the wrappers are heated due to speeding, the several cloths soon become disjointed or separated from each other and finally so worn that the wrapper is quickly destroyed.

The new or improved tire-wrappers which constitute the object of this application, consist in circular wrappers or rings so made of cloth while in the loom that they have a circular form and shape corresponding to the section of the tire over which they fit; and therefore in completing them it is only necessary to join the ends and to insert the wires or the ribbons which form the heels.

On the drawing annexed to this specification is represented a section of a reinforced cloth tire cover woven into a single piece of fabric, showing on an enlarged scale the warp and woof threads.

The section of the wrapper may be considered as divided in portions or zones; a central zone *a* and two lateral zones *b* and *c*, it being necessary, when weaving the cover that the central zone *a* be woven with a circumference having a lesser diameter than the lateral zones *b*, *c*, as only in this way it is possible that the finished wrappers take a U shape and a circular form corresponding to the tire, without forming wrinkles or corrugations. To this end, the warp threads *p*, *o*, *m*, *n*, are disposed on independent bobbins or spools, each of them having a brake. Thereby it is possible to impart a different length or development to all of the threads or only to those corresponding to each zone of the cloth; the tension on the threads on each bobbin or spool being obtained by means of the brakes. Also, it is necessary to draw out the cloth in the same ratio as aforesaid; to this end the cloth is caught by a pair of pincers in the weaving which mechanically opens when the loom's beater or comb tightens the weft threads *q*, *r*, *s*, *t*, and then it closes again when the comb moves backward; while the cloth is held in place till the comb moves forward again. The mouth of these pincers is proportional in shape to the section of the woven cloth; if the latter is of uniform thickness, the pincers are to be straight, but if it is thicker at the middle than at the sides, the pincer's mouth is to be greater at the center than at the sides. The cloth on issuing from said pincers has the proper shape of the tire, as the threads have a different tension and produce a greater amount of cloth at the center than at the sides. Owing to the proper proportionality of these elements, it is possible to give to the central portion of the wrapper the development properly corresponding to the greater circumference of the tire; and the lateral parts have also the development corresponding to the circumferences progressively decreasing in diameter.

After weaving, the wrapper is cut to the length which corresponds to the diameter of the tire and the ends are joined together either by sewing them or interlacing them so that the cloth be tapered, as aforesaid. Finally, wires are secured to the edges, either by sewing, or by folding the edges.

The wrapper may be woven of the same thickness throughout its whole section, or it may be thicker at its central zone, that is to say, at the part which is in contact with the ground, in order to give to this zone a greater resistance and consequently to increase the durability of the wrapper as shown in the drawing.

The increased thickness of the central zone of the wrapper is obtained by inserting through the corresponding central part of the comb a greater number of threads namely one, two, three, four or more threads, according to the thickness that the wrapper must have; and through the lateral parts

of the comb corresponding to the lateral zones of the wrapper, a smaller number of threads or even a single thread is inserted. In this way it is possible to cause the thickness to progressively decrease from the middle to the sides, as shown.

For weaving the wrapper, I employ that number of weft threads *u*, *v*, and of warp threads *k*, *l*, which may be found necessary to produce the desired thickness of the wrapper and to produce the reinforced part *a'*.

The several cloths are interwoven to each other as above except at the parts near the edges, where the cloths *g*, and *h*, are separated from each other. The inner cloth *g* is represented somewhat longer than the outer one *h*, but it is obvious that cloth *g* could be shorter than the cloth *h* without any feature being altered. Thus it will be seen by the manufacture of a tire of the character described, that when the central part wears through one cloth (the outer one for example) there will be still beneath it other remaining cloths forming a very compact and resistant fabric.

Having thus described my invention and in what manner the same is to be performed, I declare that what I claim as new and desire to secure by Letters Patent, is:—

1. A substantially U shaped tire cover of a continuous woven fabric, having a woven reinforcing ply overlying the tread portion of the cover and thereby thickening the same, and having cloths *g* and *h* at one extremity of the cover, substantially as described.

2. A substantially U shaped tire cover composed of a continuous woven fabric, having woven reinforcing plies overlying the tread portion of the cover, and forming a thickened zone tapered toward its edges, and having at its extremities a plurality of woven cloths *g* and *h*, substantially as described.

3. A substantially U shaped tire cover composed of a continuous woven fabric having a greater amount of cloth at the center, or tread portion, than at the sides, and provided at one of its edges with means for securing said cover to the tire, consisting of woven cloths one of which is longer than the other, substantially as described.

4. A substantially U shaped tire cover composed of a continuous woven fabric having a plurality of woven reinforcing plies overlying the tread portion, and fastening means at its edges, consisting of a plurality of woven cloths two of which are longer than the others, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

JUAN MARCET Y MARTI.

Witnesses:

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