

W. G. Adams,

Rubber Fabric .

No. 64,397.

Patented May 7. 1867.



Witnesses:

L. H. Latimer

George L. Roberts

Inventor:

W. G. Adams

By his Atty

Crosby & Gould,

United States Patent Office

WILLIAM G. ADAMS, OF FRANKLIN, MASSACHUSETTS.

Letters Patent No. 64,397, dated May 7, 1867

IMPROVED COMPOUND STRUCTURE OF RUBBER AND FIBRE FOR BELTS AND OTHER PURPOSES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM G. ADAMS, of Franklin, in the county of Norfolk, and State of Massachusetts, have invented an improved Compound Structure of Vulcanized Rubber and Fibre; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

This invention was called forth by the development of defects in the wear and operation of some of the ordinary forms of rubber and rubber belting, in my employment thereof as a conveying surface for a rice-hulling mill, such forms resisting but very imperfectly the abrasion to which they were subjected. Where woven fibrous material has heretofore been used with rubber to give strength to the structure, the fibres both of warp and weft have been so disposed as to be nearly parallel to the wearing surface of the rubber, and in this condition they wear rapidly, while only those fibres which are disposed in the direction of any tensile strain on the compound structure are effective in resisting such strain. As in rubber belting the tensile strain is exerted in the direction of its length, the warp threads of the woven fabric therein are the only ones on which substantially the strength of the structure depends; therefore in my improved structure, I retain the warp threads in the direction in which tensile strength is to be exerted thereon, and substantially parallel with this wearing surface, but have the fibres of the weft substantially at right angles to said surface, and passing through or in the structure in the direction of its thickness instead of across it in the usual way. It will now be understood that my invention consists in a compound structure of vulcanized rubber and fibre, in which a portion of the fibre is disposed parallel to the wearing surface of the rubber, and in the direction to aid in resisting tensile strains, while the other portion of the fibres is disposed substantially at right angles to said surface, so as to present at least in part the ends of fibres to wear instead of presenting only the sides of them.

I make my improved structure as follows: For a base of operations I prefer to use a metallic cylinder, which I cover with a thin sheet of rubber or rubber compound in condition to be vulcanized by application of heat, which condition is too well known to need description here. If it is desired to have one surface of the structure cloth-covered, then a layer of cloth must be first applied to the cylinder before winding the sheet of rubber thereon. I then take tape or other narrow-ware goods of width sufficient, in addition to the thickness of the material already on the cylinder, to make up the thickness of the structure required, and wind this tape, and a strip of rubber of equal width therewith and in the condition before named, edgewise on the rubber upon the cylinder, continuing the winding till the requisite width is obtained. It is obvious that between any two adjacent parts of the tape there will be a strip of rubber. To obtain narrow strips of textile goods, cloth, such as duck, may be stripped in the direction of its warp to desirable widths. Now, by suitable application of heat to the cylinder covered as described, the said covering, or the rubber part thereof, will be vulcanized, and the fibres therein will have the disposition substantially as specified, and the structure will resist abrasive wear better than any other of equal tensile strength with which I am acquainted. The drawings show two sections of my improved structure, the parts in blue representing the rubber, the parts in red the weft threads or fibres, and the parts in black the warp threads or fibres.

I claim a compound structure of vulcanized rubber and fibre, in which the disposition of fibre is substantially that specified.

WM. G. ADAMS.

Witnesses:

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FRANCIS GOULD.