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METALLIZED FIBROUS PACKING

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1 Claim. (Cl. 288—1)

My present invention relates to packings, and more particularly to fibrous packings, and aims to provide certain improvements therein.

Packings composed of fibrous materials have long been known and used, and in their makeup almost every known type of fibre has been used, such, for example, asbestos, flax, hemp, jute, cotton, etc. In the making of such packings these fibres have either been compacted into masses of definite dimensions and bonded together or have been spun into yarns and further processed by weaving, braiding or twisting the yarns into definite dimensions. Of course, textile packings offer frictional resistance to the movement of mobile parts with which they come in contact, hence various lubricants have been employed to overcome or reduce this frictional resistance. Such lubricants have included oils, greases, waxes, graphite and the like, with which the various fibrous yarns or fabrics have been saturated or impregnated. Such treatments, however, are not effective for any great length of time since the oils and greases are eliminated from the packings by heat and pressure. Moreover, modern practice in power generation and industrial processes tends toward higher temperatures and pressures, and in view thereof the effective life of textile packings is reduced accordingly.

Frictional resistance in fibrous packings has also been reduced and the life of such packings correspondingly increased by incorporating therein, auxiliary strands, wires or ribbons of metals or metallic alloys, by braiding, weaving or twisting the composite yarns to form the packing material. This latter mode of procedure, however, is a slow and costly operation because of the difficulties encountered in the braiding or weaving of such composite materials, the components of which have such wide differences in physical characteristics.

It is accordingly the primary object of the present invention to provide a packing material which possesses all of the desirable characteristics of fibrous textile packings, such as high internal strength, resiliency and heat resistance, and to combine therewith the friction-reducing and long life properties of packings formed of braided, woven or twisted composite fibres and metal strands. A further object of my invention is to provide an economical packing composed of metal and fibres. A still further object is to provide a packing material consisting of metal-covered fibres.

The foregoing and other objects of my invention, which will be apparent from the detailed description which follows, I accomplish by substantially entirely coating fibrous material, and particularly textile yarns, with a covering or layer of metal or metallic alloy. Preferably the covering of the fibres is accomplished by bonding to the fibres, metal in the finely divided state, such, for example, very fine powder with a suitable bonding material, such as rubber in solution, resins, gums, waxes, drying oils or the like. The adhesion of the metal to the fibres may be carried out in practice by first coating the yarns with the adhesive material and then applying finely divided metal particles thereto by dipping, spraying, dusting or other means which may be found practicable. The metallized or metal covered fibres or yarns may then be compacted, braided, woven or twisted to sections or shapes of required dimensional sizes.

While in practice I contemplate first forming the fibres into yarns and then coating the yarns with metal, after which they may be twisted, woven or braided into desired sections, nevertheless it is within the scope of my invention to first substantially coat the individual fibres with metal or even provide a suitable packing from compacted uncoated fibres or from uncoated twisted, braided or woven yarns, and applying a metallic coating to such material after it has been, or while it is being, formed to required shape or size for use.

As coating material for the metallized fibrous packing I prefer to use aluminum because of its advantageous physical and chemical characteristics, as well as its abundancy, low cost and large covering capacity. It will be understood, however, that I do not wish to be limited to the use of aluminum or any specific metal or metallic alloy as the coating material nor to any specific fibre as the fibrous material of the packings contemplated by my present invention, since these may be chosen and varied within the range of engineering skill, dependent upon the characteristics of the final packing desired, without departing from the spirit of my invention.

What I claim is:

A braided or woven packing material consisting of yarns, the individual strands of which have a coating of powdered metal adhesively bonded thereon prior to the braiding or weaving of the strands into a body of definite dimensions.

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