July 11, 1944. J. DRISCOLL ET AL 2,353,226

METALLIC PACKING

Filed July 15, 1941

Fig. I.

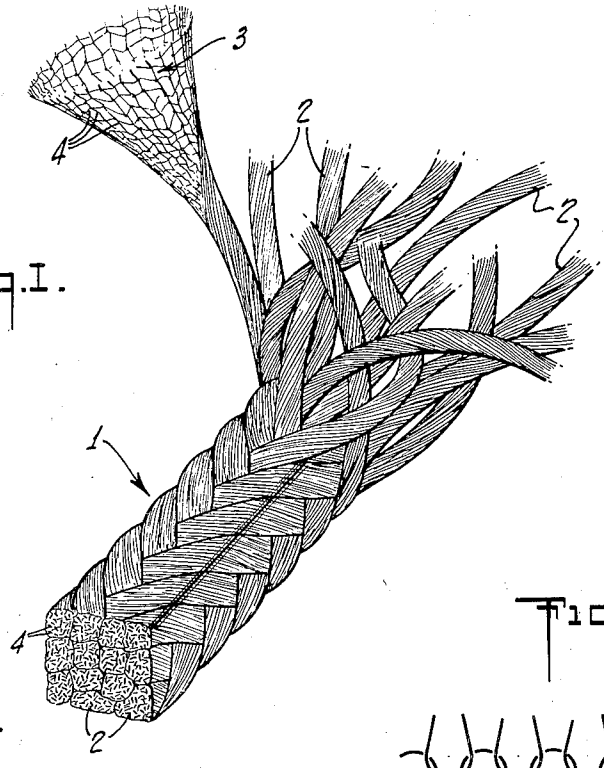


Fig. II.

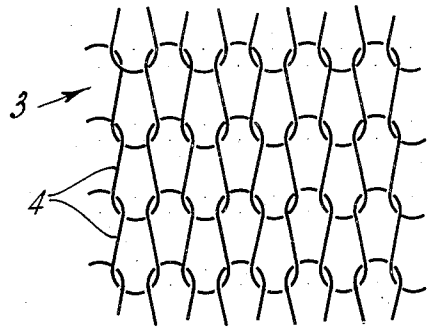


Fig. V.

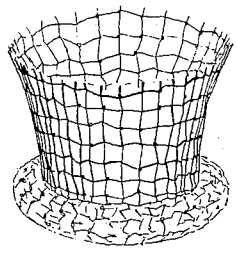


Fig. III.

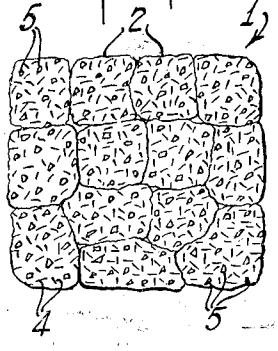
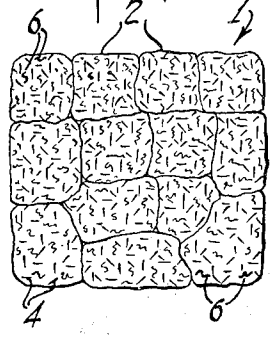


Fig. IV.



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METALLIC PACKING

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Application July 15, 1941, Serial No. 402,500

3 Claims. (Cl. 288—15)

The invention relates to metallic packings, and more particularly to a packing comprising an assembly of strands of metal fabric.

An object of the invention is to provide an improved metal packing.

A more specific object of the invention is to provide a metallic packing characterized by the combination of permanent resilience and great resistance to high temperature and corrosive agents such as acids, alkalis, hydrocarbons, hot gases, and the like.

In the drawing, wherein like reference characters designate like parts:

Fig. I is a perspective view of an embodiment of the invention at various stages of its manufacture;

Fig. II is an enlarged diagrammatic view of the metal fabric shown in Fig. I;

Fig. III is an end view of one modification of the invention;

Fig. IV is an end view of a further modification of the invention; and

Fig. V is a perspective view of a partially completed packing of a modified type.

The packing 1, as shown in the drawing, comprises a plurality of cords 2 formed from the metal fabric 3, which is composed of metallic wires or ribbons 4.

In the preferred embodiment, strands 4 are thin, narrow ribbons which are interwoven, as by knitting, to form the metal fabric 3. A circulary knit fabric is preferably employed as illustrated in Fig. 1, the fabric being suitably twisted, folded, or otherwise compacted into the form of the cord 2. The knitted or interlooped arrangement of the strands in the fabric permits the strands to act as springs when the fabric is thus twisted or otherwise compacted to impart great resiliency to the finished packing. The metal fabric 3 may be formed of a plurality of separate strands 4 or merely of a single strand 4, which is knitted or otherwise woven to form the looped, resilient fabric. As will be understood from the above discussion, in its basic construction, the packing 1 comprises a metal strand or strands formed into a fabric-like body by knitting or other fabricating steps to provide a plurality of interengaged loops particularly good results being obtained from a knitted weave as shown in Fig. II.

The metal fabric 3, shaped or compressed into cords 2, preferably by twisting, as pointed out above, are fabricated into the finished packing 1 as by braiding, twisting, or the like. Asbestos or other types of yarns may be used in the packing, if desired, by incorporating such yarn in the fabric 3 or cords 2.

The finished packing may be shaped into any desired form by calendering or by the use of pressure dies. The packing, when so formed, will retain its general shape without any substantial impairment of resiliency. The interstices formed in the packing by the use of the knitted fabric 3 and its subsequent twisting into cords 2 serve to enclose and retain almost any type of conventional packing lubricant that may be desired, whether such lubricant be in liquid, dust, or particle form. Thus oil, soft metal particles, graphite, grease, mica, and the like may be worked into the packing and will be retained therein by the strands 4. Such a lubricant may be distributed throughout the entire packing or only in a portion thereof. A lubricant such as mica in the form of particles 5 is shown in Fig. III.

The metal comprising strands 4 is preferably a relatively hard metal or alloy such as copper, aluminum, or nickel steel. Such metals are noncorrosive and their hardness causes the fabric 3 and resulting packing 1 to have great resilience. Where a minimum of friction is necessary, softer metals or alloys, such as lead, babbitt, and the like, may be used, although such metals lower the resilience of the finished packing. Where such soft metals are used, the interlooped construction of the fabric will produce the maximum resilience possible with the particular metal. In the preferred construction, the metal used is an alloy, such as Monel metal.

Where the interlooped construction of the fabric causes the finished packing 1 to be relatively porous, various fillers may be used to increase the density of the packing. Such fillers are readily absorbed by the packing and may comprise such amorphous materials as plastics, fibres, and the like. As in the case of a lubricant, the fillers may be distributed throughout any portion or all of the packing. In Fig. IV is shown the packing 1 containing a filler in the form of fibres 6.

The knitted fabric 3 shown in Fig. I, where it is circularly knit to form a tubular sleeve, particularly lends itself to the manufacture of an endless ring packing. Such a packing is preferably formed by rolling the tubular metal fabric upon itself as illustrated in Fig. V. In lieu of rolling the metal fabric sleeve upon itself, the sleeve may be compacted or crushed endwise into ring form. The shape and size of the ring are

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determined largely by the size and length of the original knitted sleeve, although, owing to the looseness and flexibility of the sleeve, the final shaped product may vary considerably, dependent on the manner in which it is rolled or otherwise formed. The endless ring packing may have lubricants or fillers incorporated therein, as in the first form of the invention. The formed annular packing, as shown in Fig. V, will have all of the resilient and resistant characteristics as does the packing shown in Fig. I.

It is to be understood that the details given above are only for purposes of illustration and the invention is to be limited only by the scope of the appended claims.

We claim:

1. A packing comprising a plurality of interrelated cords each of said cords being formed of a resilient, knitted, metal fabric composed of thin, narrow, metal ribbons and compacted into cord form.

2. A resilient packing comprising a plurality of interbraided cords each of said cords comprising a knitted fabric composed of corrosion-resistant, thin, narrow metal ribbons, said fabric being compacted into cord form.

3. A resilient packing comprising a plurality of interbraided cords each of said cords comprising a knitted fabric composed of corrosion-resistant, narrow, metal ribbons, said fabric being twisted into cord form and a lubricant disposed within the interstices of said cords.

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