

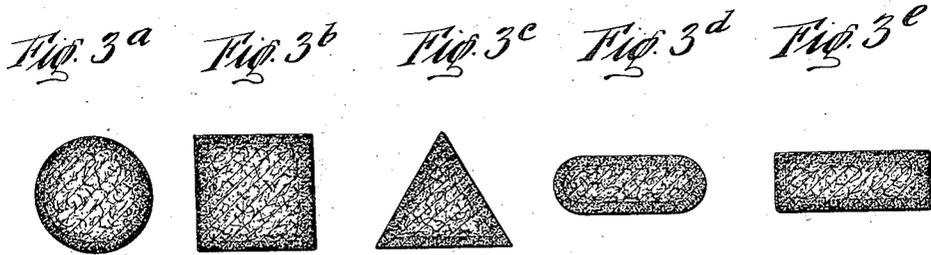
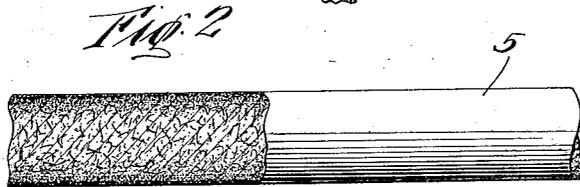
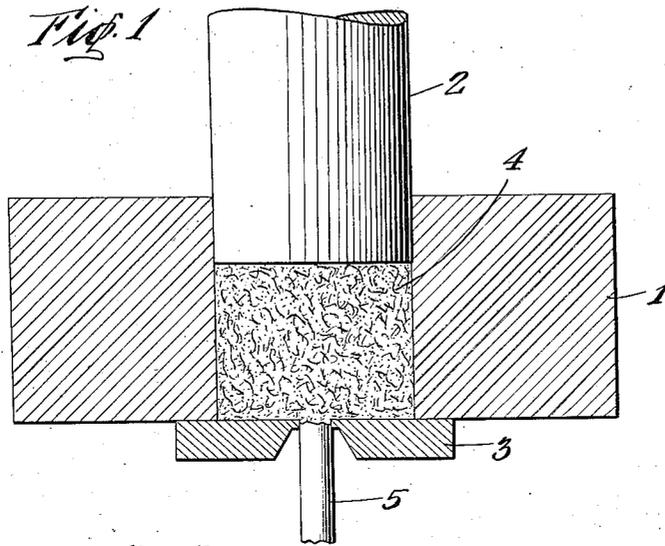
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METALLIC PACKING AND METHOD OF PRODUCING THE SAME

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METALLIC PACKING AND METHOD OF PRODUCING THE SAME

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6 Claims. (Cl. 18—55)

This invention relates to new and useful improvements in metallic packing and similar products. In addition to providing a new article of manufacture, the invention embodies the economical and highly successful method by which the commercial product is produced.

One of the salient features of the invention is the production of a metallic packing product having a core comprising a mixture of suitable metallic packing particles surrounded by a relatively thin surface skin or coating formed from the same material as the core.

In forming this new type of packing, suitable metallic and non-metallic materials may be intimately mixed in desired proportions and the resulting mass forced through a suitable die under pressure. As a result of this operation, the metallic packing mixture is formed in a continuous length, the cross section of which possesses the contour of the particular die used. As the mixture passes through the die the pressure and friction of the metal fibres against the die tend to weld the metallic particles adjacent to the die, thus forming the skin while the particles comprising the core of the elongated product are not so affected.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawing forming a part thereof, in which

Figure 1 is a diagrammatic view of one type of apparatus suitable for practicing the invention;

Figure 2 is a longitudinal view, partly in section, of one form of metallic packing which forms a part of the invention; and

Figures 3a-e are cross-sectional views of metallic packing produced in accordance with the invention.

As shown in Figure 2, the density of the outer surface of the final product which constitutes the skin is appreciably greater than the density of the core. This skin serves to give the product stability of form which greatly facilitates handling the packing before use, as well as when installations are made. At the same time, the core or interior of the product is relatively soft and easily deformed. The product may, of course, possess practically any contour in cross-section, as will be appreciated by referring to Figures 3a-e in which a few types are illustrated.

In addition to being capable of manufacture in practically all shapes and sizes, the product of the invention may be made from a great variety of raw materials. Obviously, in determining the metallic and non-metallic materials to be used, as well as the percentages of each, one's choice will be influenced by such considerations as the particular use to which the packing is to be subjected, the size of packing desired, materials available, form of the raw material, etc. A few of the more common metallic constituents are lead, antimony, antimonial lead and the like and these, as well as any others which are adapted for packing purposes, may be used in a variety of forms—wool, fiber, pellet, powder, etc.

A wide choice also exists in the selection of the non-metallic constituents of the packing. However, materials of a lubricative nature, such as grease, graphite and lubricating oils, are perhaps the most common, although other materials, such as asbestos, may be incorporated in producing packing for specific purposes.

The above materials and others may be combined in various proportions to compound the mixture from which the final product is formed or evolved. For general purposes, a metallic packing consisting of 5% graphite, 1%-2% high-grade lubricating oil, and the balance lead wool gives excellent results.

One form of apparatus suitable for practicing my improved process is shown in Figure 1, in which a cast iron or other suitable cylinder of an hydraulic press 1, having plunger or ram 2, is provided with a suitable die 3, possessing an orifice of the configuration preferred. In operation, the cylinder of the press is filled with packing material comprising metal fibers and metal constituents 4 and appropriate pressure is applied to the ram 2. Suitable means (not shown), such as burners or cooling devices, may be employed to regulate the temperature of the product being forced through the die in order to form the thin skin or coating and, at the same time, to maintain the core of the product in substantially the same physical condition as the source of the material.

It will be appreciated among other advantages that the present invention renders the use of binders unnecessary in metallic packing. The article of manufacture herein described is in such form that artificial binders, such as glue, rubber and the like, which occupied a prominent place in the prior art, are completely eliminated. This is significant, because such material, while

perhaps not always injurious, does not aid metallic packing in performing its functions.

6 Due to the fact that the metallic packing of the present invention may be produced in long lengths, the article is convenient to handle and may readily be cut and formed to any type of packing gland.

10 Properly manufactured, the packing is self-lubricating and capable of resisting the attacks of heat and acid. It is also unaffected by steam, water or oil. While the skin gives the product a more or less definite form it does not affect its packing functions as the packing readily yields under pressure and adjusts itself to the shape of the packing gland, as well as to the surface being packed.

20 While certain novel features of the invention have been disclosed and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

25 1. As an article of manufacture, a relatively soft, readily deformable core of metallic packing material surrounded by a more dense surface layer, both core and surface layer being formed from a common source of material.

30 2. As an article of manufacture, metallic packing composed of a mixture of metallic and non-metallic materials comprising a form-maintaining skin of such materials surrounding a readily deformable core of similar material.

3. As an article of manufacture, metallic packing comprising a mixture of lead wool, graphite and a relatively small percentage of lubricating oil in which the major portion of the mixture is surrounded by a skin produced by compressing the outer particles of the mass.

4. A length of metallic packing consisting of finely divided soft metal mixed with other packing materials, a portion of said metal being formed into a welded coating which comprises the surface of said packing length.

5. The method of producing metallic packing which comprises extruding a mixture of a soft metal selected from the class comprising lead, antimony and antimonial lead, and other packing materials through a die of suitable cross section with sufficient pressure to weld the metallic components of the mixture adjacent the die walls into a form-retaining skin on the surface of the material being extruded.

6. The process for manufacturing metallic packing which consists in forcing a mixture of metallic and non-metallic packing constituents through a die under such conditions of pressure and temperature that the metallic particles comprising the surface of the resulting product are welded into a relatively thin coating surrounding a readily deformable core of the mixture, said coating being sufficiently strong to maintain the shape of the product when same is handled.

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