(No Model.) 2 Sheets—Sheet 1.

H. W. JOHNS.

STEAM PACKING.

No. 524,441. Patented Aug. 14, 1894.

Fig. 1.

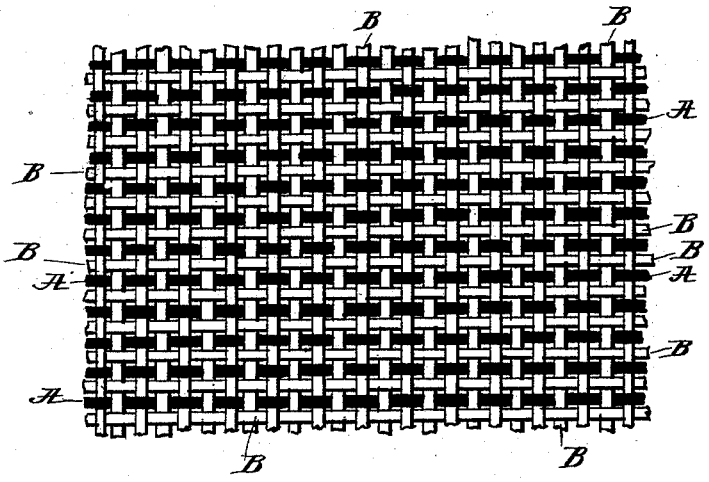
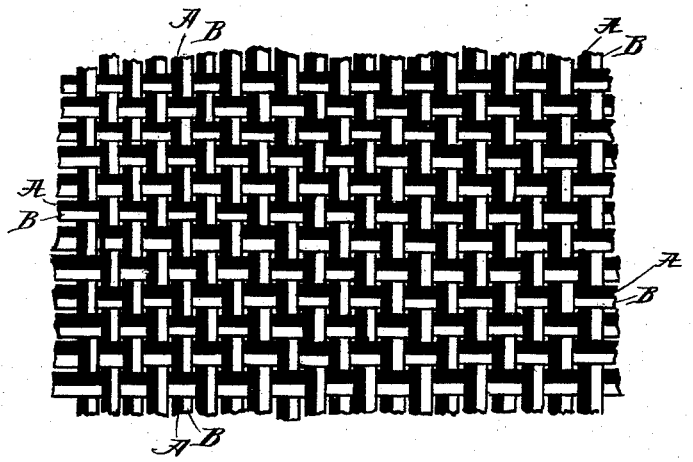


Fig. 2.



WITNESSES:
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John C. Lacey.

INVENTOR
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(No Model.) 2 Sheets—Sheet 2.

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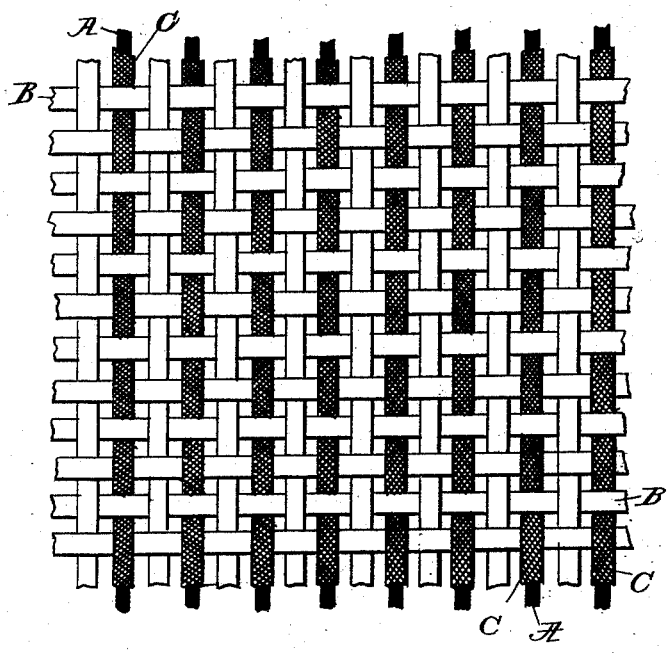
Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY W. JOHNS, OF NEW YORK, N. Y.

STEAM-PACKING.

SPECIFICATION forming part of Letters Patent No. 524,441, dated August 14, 1894.

Application filed July 24, 1893.. Serial No. 481,373. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. JOHNS, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Steam-Packing, of which the following is a specification.

My invention relates to improvements in steam packings, gaskets and like manufactures, and it consists, generally stated in weaving, plaiting or otherwise laying up, strands of soft metal preferably aluminum or lead and their alloys together with strands composed of fibrous material, preferably asbestos, or in which asbestos forms a large part, said metallic and fibrous strands being subjected to a treatment with resin or other like gum, which aids in consolidating the packing, and also secures intimate contact between the fibers and the metallic strands, and also, when desired, to treatment with plumbago, ground asbestos, talc, and like materials, which act as lubricants and fillers for the packing or gasket.

The following is a more full and exact description of my products and their method of manufacture.

In the drawings hereof, Figure 1, is a plan view of a sheet of material made in accordance with my invention, in which, what may be considered the warp threads are of soft material, lead in the present instance, and fibrous material, side by side, and the woof threads are of asbestos or other fibrous material. Fig. 2, is a plan view of another form of my invention, in which the metallic strands, and also the asbestos or fibrous strands run in both directions. Fig. 3, illustrates a modification.

A, A represent the metallic strands. As stated, they may be of soft metal, preferably lead, and its alloys because they are better lubricants than the other soft metals, and because they are more readily compressed; so that, when the sheet is used as a packing for joints, it will easily yield and flatten out, filling vacant spaces and conforming to inequalities in the packed surfaces. The metallic strands may be made in the form of a round, square or flattened wire or in the form of a strip or tape of metal.

B, B are the strands of fibrous material. They are preferably made of pure asbestos, but a proportion of material other than asbestos may be incorporated, without departing from my invention, and in fact, for some uses, it is not necessary that there should be any asbestos at all present, but other suitable fibrous material may be used, such as wool, hemp, cotton and the like. Where great heat is present, the fibrous strands should be composed largely or entirely of asbestos. The strands of metal and of fibrous material are interwoven with each other as shown in the drawings, or in any other preferred form, or they may be plaited or otherwise laid up together.

In Fig. 1, the metallic strands, side by side with fibrous strands, are shown as constituting the warp of the fabric, and the fibrous strands, the woof.

In Fig. 2, I show a metallic strand, alternating with a fibrous strand, both in the warp and in the woof.

In Fig. 3, I show the metallic strands inclosed in a woven or braided covering of asbestos strands or threads. In this figure I show the several strands larger than in the other figures, the better to illustrate the covering for the metallic strands. There may be a greater number of metallic than fibrous strands or vice versa, as preferred. For many purposes it is not essential that they should alternate. The proportion of metallic strands to the fibrous ones, and their arrangement in the fabric may vary for different uses. I also sometimes inclose the metallic strands in a covering of woven, netted, braided or twisted strands of asbestos, as shown in Fig. 3. A are the metallic strands, B the fibrous strands and C the braided or netted strands which are formed into the covering for each of the metallic strands.

For certain purposes, especially when the packing is to be subjected to frictional contact, its efficiency and durability will be increased by saturating or otherwise treating the fabric with other substances. For instance to increase the pliability, toughness and lubricity, I treat the packing with oil and sometimes apply to its surface, plumbago, talc, soapstone, or other like lubricants, which may be beneficially mixed with grease, oil or similar material. To secure intimate contact

between the metal and the fibrous material, I treat the product with resin or similar non-vulcanizable gum; also for the last named purpose, I treat the metal or the fiber with suitable adhesive material, and I subject the packing to heat and pressure to increase the density and uniformity of the product, and to secure better adhesion of its component parts.

It will be understood that the packings made by me may be used in sheet form, or as gaskets, ring packings or disk or flat packings may be cut from the sheet, or a strip of the completed fabric may be coiled or bent into the desired shape to make the desired packing; also the sheet may be folded over upon itself, the requisite number of times and subjected to pressure, to form either a flat-sided packing or the so-called rope packing.

I claim—

1. As a new article of manufacture for packing and like purposes, a compound fabric, composed essentially of strands of soft metal and strands of fibrous material, woven or otherwise held together, and treated during manufacture with resin or like non-vulcanizable gum, to aid in consolidating and to secure intimate contact between the fiber and the metal, substantially as set forth.

2. As a new article of manufacture for packing and like purposes, a compound fabric composed essentially of strands of soft metal having a braided or woven wrapper or covering made of fibrous asbestos, and other strands of fibrous asbestos; the whole being treated with resin or other non-vulcanizable gum, to aid in consolidating the packing and to secure intimate contact between the fiber and the metal, substantially as set forth.

3. As a new article of manufacture for packing and the like purposes, a compound fabric composed essentially of strands of soft metal having a braided or woven wrapper or covering made of fibrous asbestos, the same being braided or otherwise laid up with other strands of fibrous asbestos, the whole being treated during the process of manufacture with lubricating material, such as talc, plumbago or the like, and also with resin or like non-vulcanizable gums, substantially as set forth.

4. As a new article of manufacture for packing and like purposes, a compound fabric, composed essentially of strands of soft metal, woven or laid up or otherwise laid up with strands of fibrous asbestos, the whole being treated during the process of manufacture with lubricating material, such as talc, plumbago and the like, and also with resin or other non-vulcanizable gums, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 13th day of July, A. D. 1893.

HENRY W. JOHNS.

Witnesses:
PHILLIPS ABBOTT,
E. SIMPSON.