(No Model.)

F. MAASS.

CORK CORE STEAM PACKING.

No. 346,598. Patented Aug. 3, 1886.

Fig. 1.

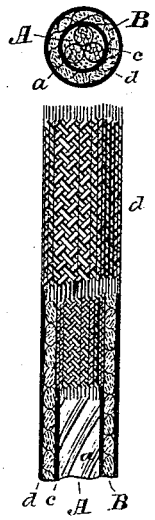


Fig. 2.

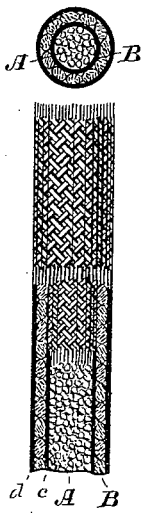


Fig. 3.

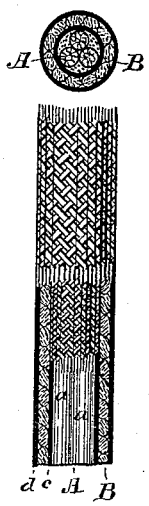


Fig. 4.

Fig. 5.

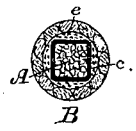


Fig. 6.

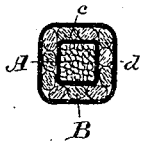


Fig. 7.

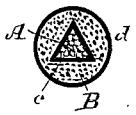
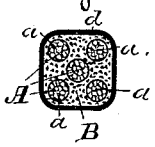


Fig. 8.



WITNESSES:

Geo. Gaintons

E. B. Bolton

INVENTOR:

Franz Maass,

By his Attorneys,

Burke Fraser & Connett

UNITED STATES PATENT OFFICE.

FRANZ MAASS, OF BERLIN, GERMANY, ASSIGNOR TO HERMANN REINHOLD, OF SAME PLACE.

CORK-CORE STEAM-PACKING.

SPECIFICATION forming part of Letters Patent No. 346,598, dated August 3, 1886.

Application filed March 5, 1886. Serial No. 194,126. (No model.) Patented in Germany May 23, 1883, No. 25,394, and in England July 3, 1883, No 3,294.

To all whom it may concern:

Be it known that I, FRANZ MAASS, a subject of the German Empire, and a resident of Berlin, in the Kingdom of Prussia, Germany, have invented a certain new and useful Cork-Core Steam-Packing, of which the following is a specification.

This invention relates to packing materials for the stuffing-boxes of steam-engines, which are made with a central core of cork. A good steam-packing should possess two qualities—namely, the ability to make the stuffing-box steam-tight without injuring the piston-rod and an enduring elasticity. Cork-core packings have considerable advantage over textile, rubber, or metallic packings. The former have the defect of soon losing their elasticity, becoming sodden under the influence of the heat of the steam. Rubber packings are also soon destroyed by the steam, and the rubber is dissolved by the lubricating-oil, which works out on the piston-rod, and metallic packings are very expensive, so that their use is greatly restricted.

Cork-core packings have the merit of making a steam-tight joint, of retaining their elasticity for a long period, not being affected by the steam, heat, or moisture, nor by the lubricating materials, and being comparatively inexpensive. These packings as heretofore made have consisted of a solid strip or rod of cork and a wrapping of cotton, linen, or other fabric. In one form it has been made with a solid rod or core of cork, made in lengths joined together by scarf-joints covered with an open net-work of twine braided upon it, and having soft cotton wrapped around it outside of this braiding.

My invention provides an improved construction of cork-core packing whereby a better packing than heretofore is produced at a reduced cost.

The cork core of my packing, instead of being a solid rod or strip, is composed of comminuted cork, either powdered or otherwise sufficiently subdivided. This core is inclosed and held in a tubular envelope of suitable material, and surrounded by a cushion of any suitable packing material, the whole being, preferably, bound together by any suitable outer covering or wrapping fabric.

Figure 1 of the accompanying drawings includes a transverse section and an elevation, partly broken away, in section of one construction of my improved packing. Figs. 2, 3, and 4 are similar views showing other constructions thereof; and Figs. 5, 6, 7, and 8 are transverse sections, showing still other constructions.

The letter A designates the core, and B the surrounding cushion. The core A is made entirely of cork, which is employed in a more or less subdivided or comminuted condition. It may be in the form of powdered or granulated cork, or of cork shavings or splinters, or shredded cork, or in any of the forms in which cork refuse may be obtained, if sufficiently subdivided. This core is by preference inclosed in a wrapping or covering, *c*, as shown in Figs. 1, 2, 3, 5, 6, and 7. This covering *c* is preferably braided or woven around the core, and it may be either of textile or metallic substance.

The envelope or cushion B is of any suitable textile stuffing or packing material, either twisted, woven, knotted, or braided, or otherwise made up. By preference, it is covered and protected by an outer covering, *d*, woven or braided around it, as shown in Figs. 1, 2, 3, 6, 7, and 8. This, however, may be omitted, especially when the envelope or cushion B is itself braided or woven around the core, as shown in Figs. 4 and 5. The covering *d* is preferred as giving a neater appearance to the packing.

Fig. 1 shows a packing with a cork core, A, composed of three round strands, *a a*, of cork twisted together, the interstices filled with powdered cork or with sawdust, and covered by a braided wrapping, *e*. The cushion B is wrapped or wound around the core, and outside of all is the plaited covering *d*. Fig. 2 shows the same construction, except that the cork core A is made of granulated cork. Fig. 3 shows the same construction as Fig. 1, except that the cork core is made of three round strands, which extend straight instead of being twisted together.

Fig. 4 shows the cork core A, made of strips or shavings of cork, inclosed directly in the cushion B, which is braided or woven in tubular form. Both the wrappings *c* and *d* are omitted.

Fig. 5 shows the cork core A, of square form in cross-section, inclosed in a tubular braided cushion, B, with the interstices at *e e* filled with powdered cork or with sawdust.

Fig. 6. shows a packing in which not only the core A but the cushion B also is square in cross-section. Both coverings *c* and *d* are here used.

Fig. 7 shows a triangular core, A, inclosed in a triangular covering, *c*, with a cushion, B, which fills it out to a circular outline.

Fig. 8 is a square packing having five cork cores, *a a*, inclosed in a cushion, B, which separates them, and which is itself confined in a wrapping, *d*.

The packing may be in any other desired form in cross-section. When finished, it may be impregnated with any suitable lubricant—as oil, fat, tallow, &c.—or it may be put on the market in the dry state.

My improved packing can be manufactured with ease and at slight cost, the cork used for the core being old cork and cork chippings or refuse. The preferred method of manufacture is to braid the tubular wrapping *c* by machinery and to employ pulverized cork, feeding it into the braided tube automatically from a hopper, and compacting it by mechanical tamping down to a uniform density. The core is thus made of uniform size and hardness throughout its length, and is free from any protuberances, such as would be produced by the presence of lumps of cork in the tube.

The core of comminuted cork has the advantage that in bending it the particles move upon one another and equalize the strain on the covering, and also that in packing it into place the free movement of the particles permits of the core being forced from its original shape in cross-section into some other shape. For instance, a round core may become approximately square or triangular in cross-section.

The comminuted-cork core of my invention, with its covering or envelope *c*, may be made a separate article of sale, if desired, to be covered with some packing fabric at the time of using.

I claim as my invention—

1. A cork-core steam-packing consisting of a flexible tubular covering filled with cork in a condition of comminution or subdivision, substantially as and to the effect described.

2. A steam-packing consisting of a core, A, of cork in a state of comminution or subdivision, as described, and a tubular cushion, B, of textile material surrounding said core, substantially as set forth.

3. A steam-packing consisting of a core, A, of cork in a condition of comminution or subdivision, a flexible tubular covering, *c*, inclosing said core, and a tubular cushion, B, of textile packing material surrounding said covering, substantially as set forth.

4. A steam-packing consisting of a core, A, of cork in a condition of comminution or subdivision, a tubular cushion, B, of textile packing material surrounding said core, and an outer wrapping or covering, *d*, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FRANZ MAASS.

Witnesses:
CARL S. BURCHARDT,
B. ROI.