

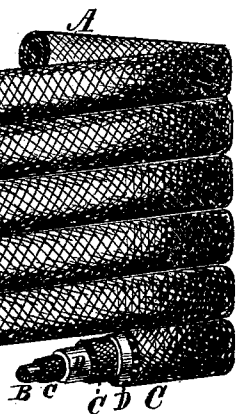
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Improvement in Piston-Rod Packing.

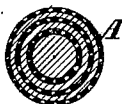
No. 130,418.

Patented Aug. 13, 1872.

*Fig. 1.*



*Fig. 2.*



Witnesses:

*John Becker.*  
*C. Sedgwick*

Inventor:

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# UNITED STATES PATENT OFFICE.

JAMES MELLEDDGE FLAGG, OF PROVIDENCE, RHODE ISLAND.

## IMPROVEMENT IN PISTON-ROD PACKINGS.

Specification forming part of Letters Patent No. **130,418**, dated August 13, 1872.

Specification describing a new and useful Improvement in Spiral Steam-Packing, invented by JAMES MELLEDDGE FLAGG, of Providence, in the county of Providence and State of Rhode Island.

The object of this invention is to furnish an article for packing the piston-rods and valve-rods of steam-engines that can be easily applied, and that will stand heat and pressure without being injured; and it consists in the article composed of the materials and in the manner substantially as herein described.

In the accompanying drawing, Figure 1 represents a portion of my improved spiral packing. Fig. 2 is a cross-section of the same.

Similar letters of reference indicate corresponding parts.

A is the packing, constructed substantially as follows: In the first place I take a cord of rubber, B, prepared for vulcanizing by a process patented by me August 15, 1871, as "oil-proof rubber." Over this cord I braid a covering of cotton yarn, as seen at C. I then soak the cord so arranged in a solution of alum, and then apply, with a brush or in some other manner, a mixture, D, composed of the following ingredients, viz.: Argillaceous mineral which analyzes about thirty-nine per cent. aluminum; forty-six per cent. silica; thirteen per cent. water; two per cent. or a mere trace of magnesium, iron, and lime; ground asbestos, powdered plumbago, alum, and common hard soap, in proportion to suit the case, are added. After two or three coats of the mixture D have been applied, and while yet in a moist state, I again braid over it a coating of undressed hemp twine or similar material. I then apply one or more coats of the mixture D, and again braid over it, as before. I add these coats of composition and the braided coats until the packing is of the desired diameter; but I always finish it with a braiding of cotton yarn, which gives it the desired smooth finish. I

then soak the packing in a solution of the argillaceous mineral and alum. I next wind the packing evenly and spirally around an arbor of any proper size, and by means of a screw fitted in a frame suited to the purpose I force the packing into a mold or tube of the desired size. I then apply the vulcanizing process before referred to, which vulcanizes the central cord or core of rubber, and when the packing is removed from the mold it retains the spiral shape, so that it can be applied to piston or valve rods by what is known as "corkscrewing" and pushed "home" into the gland, which it is designed to exactly fit.

The composition above described and used is entirely free from grit, is soft, and quickly takes a bright polish. The rod to which it is applied consequently works with but slight friction. The asbestos, plumbago, and alum resist the heat, and the vulcanized-rubber core keeps the packing in the spiral form. This packing expands when heated, and forms a most desirable packing for locomotive and other engines on account of its character as a whole and the ease with which it is applied.

I do not limit myself to the steam-engine exclusively, but design it for all frictional surfaces to which it can be applied.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A compound, D, formed of the ingredients named and the proportions specified, for the purpose set forth.

2. A packing for piston and valve rods of engines, consisting of a rubber cord, B, fabric C, and compound D, conjoined and spirally applied as set forth.

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Witnesses:

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