UNITED STATES PATENT OFFICE.

JOHN DEWRANCE, OF LAMBETH, COUNTY OF SURREY, ENGLAND.

ASBESTUS PACKING.

SPECIFICATION forming part of Letters Patent No. 311,729, dated February 3, 1885.

Application filed May 31, 1884. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN DEWRANCE, of Lambeth, in the county of Surrey, England, have invented certain new and useful Improvements in Asbestus Packing; and I do hereby declare that the following is a full, clear, and exact description of the invention, whereby a person skilled in the art to which it pertains can make and use the same.

My invention relates more particularly to asbestus as prepared for use as a packing for steam-valves and the like.

It consists in covering the fibers of the asbestus with and cementing them together by means of india-rubber, or the like article, hardened as by vulcanization.

I am aware that asbestus has been used as a component part in a packing formed of layers of asbestus and india-rubber; that asbestus, india-rubber, and sulphur have been thoroughly mixed and incorporated by grinding together, and, also, that india-rubber and triturated or comminuted asbestus have been kneaded and thoroughly mixed together, whereas the principal point of my invention is that the separate fibers shall be to a certain extent inclosed by the hardened gum.

In the practice of my invention the fiber of the asbestus is disintegrated in any suitable manner common in the arts for putting vegetable or animal fibers into a condition which render them suitable for working, and foreign substances are then preferably removed. The removal of foreign material or corrosive salts is not, however, absolutely necessary. While the fiber is in this loose state it is mixed with rubber in solution in any proper vehicle—as naphtha—the said solution containing an amount of sulphur necessary to vulcanize the mixture, and these ingredients are thoroughly mixed together. The naphtha is then thoroughly evaporated, and the composition is in proper condition to be inserted for a packing in such devices as may be without injury subjected to the necessary degree of heat to vulcanize the rubber. An instance of such a use of the packing is found in the improved steam-valves as made by me, the packing prior to vulcanization of the cementing material being forced into chambers or grooves between the working parts of the valve, the latter then being heated so as to vulcanize the rubber. The composition of asbestus fiber and gum prior to vulcanization may, after the thorough evaporation of the naphtha, be compressed into any desired shape, and then it is submitted to a sufficient degree of heat to vulcanize the gum, which may be india-rubber, gutta-percha, or any like gum, and the hardening may be accomplished by the process of vulcanization or by any equivalent means of hardening such material.

It is to understood that the per cent. of rubber or gum mixed with the asbestus fiber in the making of my improved packing is the least amount that will serve to bind together the fibers of asbestus, leaving the latter to stand the main burden of the wear in its use as a packing, and an essential point in my invention is that the india-rubber or like gum is deposited in solution on the fibers of asbestus when the latter is in a loose state.

I claim as my invention—

1. The within-described method of compacting asbestus fiber for use as a packing, which consists in incorporating with asbestus fibers in a loose state india-rubber or the like gum and sulphur or other hardening material in solution, evaporating the vehicle by which the gum is dissolved, and then hardening the mass by subjecting it to heat, all substantially as described.

2. As an improved article of manufacture, a packing for steam-valves and the like formed of asbestus fiber or equivalent material coated with india-rubber or the like gum in solution, all substantially as described.

3. As an improved article of manufacture, a packing for steam-valves or the like formed of asbestus fiber coated with india-rubber or the like gum in solution, then compressed to shape and hardened, as by heat, all substantially as described.

JOHN DEWRANCE.

Witnesses:

EDGAR HAMMOND MINNS,

GEORGE HENRY WALL,

Both of 158 *Gt. Dover St., S. E.*