

# UNITED STATES PATENT OFFICE.

THOMAS H. DUNHAM, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PROCESSES FOR PRESERVING COTTON, HEMP, AND FLAX HOSE, BELTING, &c.

Specification forming part of Letters Patent No. **170,829**, dated December 7, 1875; application filed December 7, 1874.

*To all whom it may concern:*

Be it known that I, THOMAS H. DUNHAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and valuable Process for the Purpose of Preserving Cotton, Hemp, and Flax Packing, Hose, and Belting; and I do hereby declare that the following is a full, clear, and exact description thereof.

For many years past leather hose and belting, and also rubber hose, belting, and packing, have been largely in use. The best goods, however, of leather and rubber are very liable to weaken and wear out by reason of frequent exposure, and to rot by reason of their natural tendency.

The use of cotton, hemp, and flax packing, hose, and belting has increased latterly, owing not only to its cheapness, but also to its superiority in withstanding wear and strain.

The tendency to mildew and sweating which these latter possess has been somewhat remedied by putting rubber in with the fibrous fabrics. This, however, has added to its rotting tendency and injured the fiber.

It is, therefore, the object of this invention to remedy these evils, and to make the hose, packing, and belting, or the fabrics or fibrous materials of which they are made, durable, strong, and in every way superior to those now in use.

I first prepare a bath of tar compound, heated to boiling-point by the direct action of steam, which keeps the compound thin and penetrating. I add to every barrel of tar three to five pounds of tallow, which softens the tar, and acts, with the potash in the tar

compound, to combine it; one pound to three pounds potash, which renders the tar inodorous and lightens the color; one to three pounds of rosin, as water-repellent; ten to twenty pounds of ocher, giving color, and fire-repellent. If I want the color lighter I omit the ocher, and use clay, chalk, or whiting to same amount, as fire-repellent. I use, in addition, five to ten pounds of sulphur, which acts, with the oil and potash, in giving light color, as also as water-repellent. I add five to ten pounds of alum, sulphate of ammonia, or other soluble salt of an alkali, as fire-repellent; also, one to three pounds camphor, or other odorous equivalent.

By means of this process all mildew, dry rot, damage from water, steam, or heat, and weakening of the fiber, is entirely prevented, and the goods are materially strengthened, preserved, and their value largely enhanced.

There are, doubtless, other fabrics and manufactured articles to which this process may be applied with substantial benefit.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

The hereinbefore-described process of treating cotton, hemp, and flax packing, hose, and belting, either before or after they are manufactured into proper shape for consumption, substantially as and for the purpose above specified.

THOMAS H. DUNHAM.

Witnesses:

HENRY W. WILLIAMS,  
S. F. BRYANT.