UNITED STATES PATENT OFFICE.

THOMAS H. DUNHAM, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN TREATING TAR.

Specification forming part of Letters Patent No. **163,979**, dated June 1, 1875; application filed May 15, 1875.

To all whom it may concern:

Be it known that I, THOMAS H. DUNHAM, of the city of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Treating Tar in its Application to Manufactures; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same.

My invention consists in a new and improved method of treating tar in its application to the arts and manufactures, and in an improved tar obtained by my method, which is inodorous and of any desired color.

The usual form of treating tar has been to boil it to a certain point and use it in a crude state, without any changes in the color, odor, or quality. The tar thus applied to goods is black and odorous in winter, making most materials very stiff and unsuitable for use. In summer it is liable to sweat and become sticky, while the effect produced is injurious to the material to a large degree, especially in all tarred cordage where tar is applied in this form. As shown by official statements of experiments in the British navy, its use tends to weaken the rope twenty-five per cent. In manila ropes the tar stiffens and weakens it so much that it is only used in the American navy in its application to the outside yarns of the rope. By my improved method of treating the tar its application can be made to a very extensive class of goods to very great advantage. In a large class of materials tar so prepared can be used where it has never been applied heretofore. By cleansing and purifying the tar the qualities are changed, so as to give colors in any shades required. It can be rendered inodorous and fire-proof, making it white when required, thus wholly changing the leading features of its use in the past.

In cotton, flax, hemp, jute, and other fibrous material it can be applied to advantage; also in making yarns, carpets, clothing, hose, belting, bagging, wire coverings, shoes, awnings, and a large variety of other uses.

In order to render a clearer description of the manner of treating the tar, I will now give the details more fully, as follows:

I use a series of vats or baths, heated by steam; these vats flow into one or more vats, where the goods are run through the tar by machinery. I apply agitators in the vats, using double metal tanks for steam-heating, or wood tanks heated with steam-pipes or direct steam. I cook the tar thoroughly in water and let it settle. After drawing off the impurities, I add one pound of potash or salsoda to each barrel of tar. If I wish to bleach the tar I wash it off with sulphuric acid and chlorine or alkali. The bleaching renders the tar inodorous and less inflammable. When the bleaching is not required, after using the potash or soda as first stated, I add three to five pounds of alum to each barrel of tar, also one pound of rosin or glue and one pound of tallow or oil. When these are boiled into the tar I add three to five pounds of crude sulphur to the same quantity of tar, as stated. The oil and sulphur give the tar a light drab color. The sulphur deodorizes the tar. The alum adds to the fire-proof quality. I use madder and other vegetable colors or the ochers to give the tar dark shades, using five to ten pounds of ocher to each barrel of tar. I then add to the tar sulphate of ammonia or a soluble salt of an alkali, or an alkaline earth, chalk, lime, or baryta, making the tar inodorous and fire-proof.

Tar prepared by my process is readily distinguished from the pine-tar now in use by its bright color, resulting from the action of the bleaching agents, and by having positive colors imparted to it.

Having thus described my invention, what I claim is—

1. The prepared tar, being inodorous and bright-colored, as described.

2. The process described for treating tar to give it a brighter color and free it from odors, consisting in treating it with acids and alkalies, or with bleaching compounds, substantially as described.

3. The method herein described for rendering tar fire-proof, consisting in combining with it sulphate of ammonia or other salt of ammonia, or a soluble salt of an alkali, and ocher, chalk, infusorial earth, whiting, lime, baryta, or equivalent earthy material, substantially as set forth.

In testimony that I claim the foregoing as my own, I hereby affix my signature in presence of two witnesses.

THOMAS H. DUNHAM.

Witnesses:
H. M. MARTIN,
THOMAS WILLIAMS.