UNITED STATES PATENT OFFICE.

THOMAS H. DUNHAM, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MAKING OAKUM.

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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 an Improvement in the Manufacture of Oakum; and I do hereby declare that the following is a description of my invention sufficient to enable those skilled in the art to practice it.

Oakum, as is well known, is made from tarred rope, and it might almost be said from old rope, as the oakum sold or used in commercial marine is obtained from old rope, the only exception being in a very small percentage that is sometimes used in the navy marine, and obtained from new tarred rope. This percentage is very small, however, and it may be stated that all oakum of commerce is manufactured from old rope; and, in fact, the term oakum means old tarred rope cut up, untwisted, and opened.

The ordinary calking of vessels does not last efficient, on an average, more than two or three years, or not more than half as long as the metal sheathing, and vessels have to be stripped of their sheathing to be recalked, although calked and sheathed at the same time, and although the sheathing may not be seriously worn.

In manufacturing oakum from tarred rope, the rope is cut up into short lengths, is then untwisted, then boiled to soften it and take out the hard tar, and enable it to be opened and picked, and is then dried and carded and made into loose flakes. Oakum thus made is not such an article as is best fitted for calking, for various reasons; and, first, being made from old rope, the fibers have lost much of their strength and vitality. Next, because having to be cut up into short lengths, the staple is shortened. Next, because the little tar that remains in it after long wear and exposure is mostly removed by the boiling to which the material has to be subjected to make it workable. And, finally, because from wear, exposure, and this preparatory treatment, it loses a great portion of its elasticity and springiness.

The object of my invention has been the production of a calking material having all the advantages due to the formation of oakum from hemp rope in fibers, without any of the defects due to the manufacture of oakum from old tarred rope, and to the treatment requisite to convert the same into oakum. For such production I use staple flax or hemp tow in its dressed or workable condition, which, by a peculiar treatment, I render fit for calking purposes, such treatment consisting in first opening the material and forming it into a sheet or bat; next, passing it, while in the form of a bat, through a bath of hot tar, and expressing from it all superfluous tar as it emerges from the bath; next, drying it to remove, by evaporation, all excess of tar; and, next, carding it and forming it into a suitable bat or flake, which may be baled in bat form, or may be spun or slightly twisted for bundling or baling.

The material thus prepared I call oakum, although made from the staple production instead of from old rope; and for calking it is both for endurance and efficiency vastly superior to any of the oakum heretofore manufactured, and will outlast the sheathing that covers it.

My invention consists in an oakum or calking material thus prepared, and in the process of manufacture by which it is prepared.

In practice, I proceed to manufacture the new oakum or calking material as follows: I first pick or open the tow in a suitable breaker and form it into a suitable bat. This bat I then, by suitable feeding mechanism, pass through a vat which is kept supplied with boiling tar, and with which are combined feed or draw rolls that take the bat from the tar and express the more liquid portion from the bat. I then pick open the tarred bat, and then partially dry it in the air, or by artificial heat. Then, in a suitable carding-machine, I form the material into a lap or flake, which may be baled without further treatment, or may be slightly twisted or spun prior to being baled or bundled.

Thus made, the oakum or new calking material has all the strength, brightness, elasticity, and springiness due to the employment of the new fiber, and just the requisite amount of tar to fit it for entering and being retained in seams.

One great difficulty in common oakum is, that the tar that is in it is dead, and that even most of this tar has to be removed to enable

the fibers to be got into workable condition, while in my oakum there are both new fibers and new tar as well as long fibers and an amount of tar that may be graduated in the manufacture of the oakum, as may be required.

In the grinding action of the planks of a ship upon the oakum with which seams are calked, the old worn fiber is soon "chewed up," as the expression is, owing to the rottenness of the fiber and the insufficiency of its tarry covering, but the new fiber and the new tar used in my invention so far correct these defects that the calking will outlast the sheathing, instead of failing first, as is the case with oakum as now used.

I claim—

The improvement in the manufacture of calking material, consisting in first opening and forming into a bat the staple flax or tow, next passing it through hot tar and expressing from it all superfluous tar as it emerges from the bath, next drying it, and next carding it and forming it into a batt, all substantially as described.

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Witnesses:
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