

UNITED STATES PATENT OFFICE.

JOHN KNOWLES AND ROBT. GILBERT, EXECUTORS OF ROBERT BILL, OF LONDON, ENGLAND.

METHOD OF PRESERVING TIMBER AND OTHER VEGETABLE PRODUCTS.

Specification forming part of Letters Patent No. 391, dated September 21, 1837.

To all whom it may concern:

Be it known that I, AUGUST GOTTHILFF, of the city of New York, in the State of New York, am the legal representative of the executors of ROBERT BILL, formerly of the city of London, in the Kingdom of Great Britain, deceased, who was the inventor of a mode of preserving timber and other vegetable products—such as hemp—made or to be made into cordage by saturating the same with a material and in a manner not previously used or known, and which, as I verily believe, is not now publicly used or known; and I do hereby declare that the following is a full and exact description of the said invention.

The timber, in the form of logs, plank, or otherwise, is to be placed in suitable troughs or tanks, which should be made of metal, and so fixed that heat can be applied to fuse, and, if necessary, to boil the composition with which the timber is to be covered in the troughs or tanks.

This composition is made in the following way: Coal-pitch and coal-tar, which may be obtained at the works where mineral coal is employed for making gas, or as a product from coke-ovens, are put into the troughs or tanks with the timber in sufficient quantity to cover the same when fused. This mixture is to be heated to the temperature of about 350° of Fahrenheit's scale, and it is to be continued at this temperature, or nearly so, for a space of time which will vary according to the size of the timber to be saturated. For ordinary plank six hours may suffice; but for large timber twelve hours, or even more, may be necessary. The length of time will be less for well-seasoned timber than for that which is not so, as it will be proper in all cases to allow time enough for the heat applied to expel all the contained moisture, or the process will be incomplete. The appearance of the surface of the heated material will indicate when this has taken place, the evaporating moisture and the escape of air from the pores causing the formation of numerous minute bubbles. When the saturation is deemed to be complete the fire is removed and the hot material is drawn off. Sometimes, instead of immediately draw-

ing off the heated material, it is suffered to cool and harden, as in this case it is apprehended that the pressure of the atmosphere may aid in forcing the cooling but fluid mass into the pores of the wood. When this is done the material must be again heated for the purpose of drawing off the redundant portion. The surface of the timber, when the saturation has been completed, will be improved by coating it with a thin varnish made by incorporating coal-pitch and spirit, or, as it is sometimes called, the "black oil of coal-tar," in the proportion of about one part of the former to five or six of the latter.

As the resinous matter, known by the name of "asphaltum" or "jews' pitch," is in its nature analogous to the pitch from mineral coal, being, it is believed, only a more pure form of the same bituminous substance, this, where it can be obtained in quantity and at a sufficiently-low price, may be substituted for the pitch obtained from coal, and may be fused with a portion of coal-tar with or without a portion of the black oil of coal-tar, as may be deemed expedient. Such a substitution would necessarily be considered as not only analogous to but identical with the process as first described.

When hemp for cordage is to be saturated the proper period is that usually adopted for tarring rope—namely, when it is in the state of yarn. In ordinary cases the coal-tar is to be boiled until it is brought nearly to the consistence of mineral pitch, and to this is added as much crude or raw turpentine as may be necessary to give to it the desired body. This in most instances will amount to about one part of the turpentine to about three parts of well-boiled mineral tar. Where greater pliability is required in the rope, this may be given by the addition of a portion of the spirit of coal-tar.

In saturating timber with the before-described compound any of the known mechanical means of accelerating the process may be resorted to—such, for example, as making the troughs or tanks air-tight and exhausting the air from them, or making pressure upon the contained fluid by means of a force-pump, or otherwise—but from the experience had upon

this subject it does not appear that these devices are necessary to perfect saturation.

What is claimed as new and as constituting the invention of the before-named ROBERT BILL is—

The saturating of timber of all kinds with mineral tar or pitch by covering the same therewith in suitable troughs or tanks, in which it is subjected to the action of heat, in the manner described, which saturation is for the purpose of preserving it from destruction by worms, from dry-rot, or from decay from other causes; and also the saturating the fibers of hemp or other vegetable substances of which ropes are

manufactured with mineral pitch or tar, as obtained from mineral coal, either alone or in combination with the spirit of coal-tar, and, in the case of the material for ropes, in combination with turpentine, as herein described, applying the same in all cases at a temperature and substantially in the manner set forth, and including under the general denomination of "mineral pitch" that species known by the name of "asphaltum" or "jews' pitch."

AUGUST GOTTHILFF.

Witnesses:

THOS. P. JONES,
JAMES TREAT.