

BABBITT'S ANTI-ATTRITION METAL.

LETTER

FROM

THE SECRETARY OF THE NAVY,

TRANSMITTING

*The articles of agreement entered into for the purchase for the United States of the right to use Babbitt's anti-attrition metal, together with letters in relation to said metal.*

FEBRUARY 18, 1843.

Read, and referred to the Committee on Naval Affairs.

NAVY DEPARTMENT, February 16, 1843.

SIR: I have the honor to state that, by virtue of the authority vested in me by the act of Congress of the 26th August, 1842, entitled "An act authorizing the Secretary of the Navy to contract for the purchase for the United States of the right to use Babbitt's anti-attrition metal," I have entered into a contract with Isaac Babbitt for the use of the said metal, which I now submit to Congress for its approval. The terms upon which the contract was made were the best upon which it could be obtained. Should the contract be ratified, it will be necessary to make an appropriation for the payment of the consideration.

I am, respectfully, your obedient servant,

A. P. UPSHUR.

Hon. JOHN WHITE,

*Speaker of the House of Representatives.*

*Articles of agreement had, made, concluded, and agreed upon, this twentieth day of September, in the year of our Lord one thousand eight hundred and forty-two, between Isaac Babbitt, of Boston, of the one part, and the Hon. Abel P. Upshur, Secretary of the Navy of the United States, on behalf of the United States, of the other part.*

Whereas in and by a certain patent, bearing date the 17th day of July, one thousand eight hundred and thirty-nine, there is granted to the said Isaac Babbitt, his heirs, executors, administrators, or assigns, for the term of fourteen years from that date, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, a new improvement in the mode of making boxes for axles and gudgeons, a descrip-

tion whereof was given in a schedule annexed, and made a part of said patent; and whereas, in and by a certain act of Congress, bearing date the 29th day of August, in the year one thousand eight hundred and forty-two, entitled "An act authorizing the Secretary of the Navy to contract for the purchase for the United States of the right to use Babbitt's anti-attribution metal," it is enacted "that the Secretary of the Navy be, and he hereby is, authorized to contract for the purchase from the proprietor of the patented interest therein, for the United States, the right to use Babbitt's anti attrition metal, in the construction of machinery and other work, subject to the ratification of Congress; and whereas the said A. P. Upshur, by virtue of the authority vested in him by the said act, has entered into negotiations with the said Isaac Babbitt, for the purchase for the United States of the right to make and use the said invention, and the said composition metal; and the said parties have come to an agreement for the sale and purchase of the said right:

Now this agreement witnesseth: That the said Isaac Babbitt, in consideration of the sum of money hereinafter mentioned, doth hereby, for himself, his heirs, executors, and administrators, and every of them, covenant, promise, and agree, to and with the said A. P. Upshur, Secretary of the Navy as aforesaid, and his successors in office, that he, the said Isaac Babbitt, shall and will, on the ratification of this agreement by Congress, by such grant, conveyance, or assurances in the law, as the United States or their counsel shall reasonably devise, advise, or require, well and sufficiently grant, assign, convey, and assure to the United States a full, free, and perfect right to make and use the said invention, described in the said patent and schedule annexed thereto, and every part thereof, and particularly to make and use the composition metal therein described, and apply the same to machinery, and all other work of every description to which it can be applied, and in which they may think proper to employ and use the same; and that the said right, so to be assured to the United States, shall exist and may be exercised in foreign countries as well as in the United States, during all the term of the said patent yet to run, and during all time thereafter, notwithstanding any extension or extensions of the said patent, and notwithstanding any patent or patents which the said Isaac Babbitt or his assigns may obtain in any foreign country; and also that he, the said Isaac Babbitt, shall and will, immediately on the execution of these presents, and whenever he may be hereafter required, communicate and make known to the Secretary of the Navy for the time being, or any officer or agent named by him, all necessary information and instructions respecting the said invention, and every part thereof, and for the preparation and working of the said metal, and the application of the same in the construction of machinery and other works; and also that, from and after the execution of this agreement, the United States may make, use, and apply the said composition metal, and make use of the said invention in any manner they shall think proper, without being liable to the said Isaac Babbitt for any infringement of his patent right, and that he shall not demand any compensation or damages therefor, in case this agreement shall be ratified by Congress.

And the said Abel P. Upshur, Secretary of the Navy as aforesaid, and on behalf of the United States, doth hereby covenant, promise, and agree to and with the said Isaac Babbitt, his executors, and administrators, that upon the sealing and delivery of such conveyances and assurances as aforesaid, according to the true intent of these presents, and upon an appropriation

for the purpose being made by Congress, the said United States shall and will pay or cause to be paid to the said Isaac Babbitt, his executors or administrators, the sum of twenty thousand dollars, in full for the purchase of the right aforesaid: Provided, nevertheless, and it is hereby mutually covenanted and agreed, that this agreement, in terms of the said act, is subject to the ratification of Congress.

In witness whereof the said Isaac Babbitt hath hereunto set his hand and seal; and the said A. P. Upshur hath set his hand and caused the seal of the Navy Department to be affixed, the day and year first above written.

The word "not" erased before signing.

ISAAC BABBITT, [L. S.]

A. P. UPHUR, [L. S.]

Witness: B. HOMANS.

WASHINGTON, April 15, 1842.

SIR: Referring to a conversation with you this morning, upon the merits of "Babbitt's anti-attribution metal," I beg leave to submit:

That Mr. Babbitt's invention consists of substituting a soft unctuous metal for the hard brass or composition heretofore used to sustain the journals and other moving parts of machinery, which soft metal is enclosed in ribs or ledges of harder metal to prevent its being spread by the weight of the shafting or pressure.

This metal has been long enough in use fully to test its merits, and I have no hesitation in saying that it is one of the most valuable improvements in the construction of moving machinery, that has come to my notice.

The effects produced are

1st. A great diminution of friction.

2d. A saving of oil to the extent of one-half or more.

3d. An economy in the original construction, as the brasses which receive the journals may be made much lighter when lined than when they come in direct contact with the hard metal.

4th. A saving in repairs, as the soft metal will wear longer than the hard and they may be relined at small cost.

5th. A saving of fuel consequent upon a reduction of friction.

My opinion is that the introduction of this metal into the Government steamers will be of essential service.

I herewith transmit a copy of a letter received from Captain J. Erricsson, the engineer employed by Captain Stockton to superintend the machinery of the "Princeton," United States war steamer, which gives his view of the subject. Long experience in the use and construction of machinery entitles his opinion to great weight.

I am, with much respect,

S. V. MERRICK.

Hon. ABEL P. UPSHUR,

Secretary of the Navy.

NEW YORK, April 2, 1842.

DEAR SIR: Your letter of 31st March has come to hand, and I regret to learn that there are any difficulties in the way of employing Mr. Babbitt's

anti-attrition metal, in the engine now constructing for the "Princeton." In fact, we have proceeded so far that we cannot now dispense with it.

Respecting the general utility of Mr. Babbitt's metal, I can safely assert that there is not, in a strictly practical point of view, a greater desideratum in mechanics; and the advantages which will be derived from its employment in marine steam machinery are of paramount importance. The complete prevention of the heating of the main journals and crank pins, effected by the interposition of the anti-attrition metal, is an advantage in itself sufficient to warrant its employment. I once happened to be on board a steamer when, close on a lee-shore, the crank pin got so hot that the engine had to be stopped at the eminent risk of touching ground. Again, in a dollar and cent point of view the anti-attrition metal recommends itself strongly, as it will quite obviate the necessity of renewing the bearing brasses; the cost of supplying a new coating or lining of the soft metal being very trifling. Another important saving will be effected by the greatly diminished consumption of oil consequent on its employment.

To these advantages may be added an increased duty of the engines, owing to the diminished friction; some saving of fuel must result from this. Again and lastly, the important fact must not be lost sight of, that an engine in which every bearing is provided with the anti-attrition metal, requires very little attention from the engineer, whilst its performance will be uniformly effective.

Yours truly,

J. ERICSSON.

To MESSRS. MERRICK & TOWNE.

COMMANDANT'S OFFICE, U. S. NAVY YARD,

*Philadelphia, April, 14, 1842.*

SIR: I have the honor to acknowledge the receipt of your letter of the 12th instant, and being desired to make an early reply, I hasten to give you all the information I have been able to obtain in the course of the day respecting Babbitt's anti-attrition metal.

Mr. J. Henry Towne, who knows as much upon this subject as any other person in this city, and who, I believe, was on the committee appointed by the Franklin Institute, gives the following information in answer to the queries contained in your letter:

#### "UTILITY."

"Experience has proved the utility of Mr. Babbitt's application of anti-attrition metal; it has been used with great success on locomotives and steamboat engines in parts which are exposed to great stress, and where the ordinary composition is very rapidly abraded. Its advantages are found to be: 1st, increased durability; 2d, diminished friction; and, 3d, reduced consumption of oil; to which might be added the ease and cheapness of renewing a bearing when worn out.

"A committee of the Franklin Institute in this city, after a careful examination of the merits of this invention, made a highly favorable report; and it is thought, by those conversant with such matters, to be an improvement in machinery of great practical utility.



## "Cost.

"The materials of which the anti-attribution metal is made are not more costly than the materials in common use for the same purpose. Mr. Babbitt's agents sell it at the same price as the ordinary composition; and it is fair to infer that they have a handsome profit.

## "AMOUNT REQUIRED.

"This cannot be well estimated; it would be of comparatively small amount. Mr. Babbitt's patent is for the *method of confining* the metal; and, with the privilege to use the patent, it would not be necessary to provide a stock in advance, because the materials could at any time be purchased, and the mixture made when required for use.

## "VALUE OF THE RIGHT TO THE UNITED STATES.

"This would depend upon the extent of its application; but we cannot form a definite opinion on this point."

If further information should be required, Mr. Merrick and Mr. Copeland are now in Washington, and can furnish all that is desired.

I have the honor to be, sir, very respectfully, your obedient servant,

GEORGE C. READ,

Hon. A. P. UPSHUR,

*Secretary of the Navy, Washington City, D. C.*

