

# UNITED STATES PATENT OFFICE.

PALMER SUMNER AND PETER NAYLOR, OF NEW YORK, N. Y.

IMPROVEMENT IN THE PROCESS OF PROTECTING IRON FROM OXIDATION.

Specification forming part of Letters Patent No. 1,374, dated October 18, 1839.

*To all whom it may concern:*

Be it known that we, PALMER SUMNER and PETER NAYLOR, of the city of New York, in the State of New York, have invented an improvement in the process, method, or methods by which various articles of iron or steel may be preserved from oxidation or rusting by the galvanic action produced by zinc, (for which process Letters Patent were granted to M. Sorel on the 7th day of December, 1837;) and we do hereby declare that the following is a full and exact description of our improvement.

We, the said PALMER SUMNER and PETER NAYLOR, having become proprietors, by assignment, of a right to use the said process, have, in carrying the same into practical operation, found the malleability of sheet-iron is much impaired by giving thereto a coating of zinc in the manner directed in the specification of the Letters Patent of said M. Sorel, and that in consequence of this diminished malleability such prepared sheet-iron is unsuited in many cases to be applied to the purpose of covering the roofs of houses, or to be otherwise used where it is required to be grooved, seamed, or in any way suddenly bent; and our improvement consists in a process by which this difficulty is obviated, while the zinc is at the same time so applied as, by its galvanic action on the iron, to protect it from oxidation.

We take sheets of iron and cover them with tin or with an alloy of tin and lead, adopting in this process the mode or modes followed in the well-known manufacture of sheets or plates of iron into tin-plate. After having completed this operation we submit the sheets or plates so prepared to a like process, with the substitution of zinc for tin or an alloy of tin, the mode of performing which process is fully set forth in the Letters Patent granted to said M. Sorel, and does not differ from the ordinary

process known under the name of "tinning." When thus treated the plates or sheets of iron preserve their malleability unimpaired, and may be bent and otherwise worked as easily as before they had received such coating—a result which appears to be due to the interposition of the coating of tin between the zinc and the iron, by which interposition the chemical combination of the iron and zinc is prevented. Where it is not necessary to use plates of metal of a larger size than that of sheets of tin-plate we take that material as it comes from the manufacturing, and have then only to give to it a coating of zinc, to receive which it does not require any particular preparation.

In the Letters Patent granted to M. Sorel it is proposed sometimes to add a coating of tin over that of the zinc for the purpose of giving to the article made a bright appearance, and as an improvement also in culinary vessels; but our process is the reverse of this, and the end attained by us altogether different from that above proposed, and at the same time our process produces a new and useful result.

What we claim, therefore, as our invention, and as an improvement on the process of M. Sorel, is—

1. The preserving the malleability of sheet-iron while it is protected from oxidation by the galvanic action between it and zinc, in the manner herein set forth—namely, by first tinning said iron in the ordinary way and afterward by giving thereto a coating of zinc above the tin.

2. The protection of iron and manufactures of iron generally from rust by the same process.

PALMER SUMNER.

PETER NAYLOR.

Witnesses:

K. S. VAN VOORHIS,

GEO. STEVENS.