

# UNITED STATES PATENT OFFICE.

JOHN B. SOWASH AND GARDNER V. WRIGHT, OF PATTERSON, IOWA.

## INCRUSTATION-PREVENTIVE.

SPECIFICATION forming part of Letters Patent No. 230,903, dated August 10, 1880.

Application filed December 27, 1879.

*To all whom it may concern:*

Be it known that we, JOHN B. SOWASH and GARDNER V. WRIGHT, of Patterson, in the county of Madison and State of Iowa, have  
5 invented a new and Improved Compound for Removing Incrustations from the Inside of Boilers, of which the following is a specification.

The object of our invention is to save material and expense, facilitate the labor, and diminish the dangers incident to the use of ammonia, petroleum, sweet-oil, lard-oil, and sugar for preventing and removing incrustation in steam-boilers.

15 Heretofore the salts of ammonia has been used to accomplish the results contemplated; but its power to corrode metal and its tendency to make the water in the boiler foam and rise to fill the tubes and cover the valves cause  
20 danger of explosion and damage when used by a novice.

To regulate the power and action of ammonia, and to assure safety in the use of it in boilers, animal fats and oils and various other  
25 materials may be combined with it; and to produce a cheap, safe, and effective compound, we mix the following ingredients in the proportions stated, viz: One-fourth ounce of chloride of ammonium, five-eighths ounce of sweet-  
30 oil, one-half ounce of lard-oil, one-half ounce of Virginia black oil or petroleum residuum, one-half ounce of sugar.

By placing these ingredients together in a bottle or other suitable vessel the sugar and  
35 chloride of ammonium will be dissolved, and the whole will become a liquid compound that can be readily poured into a boiler. The half of the above-named quantity is sufficient for one application to the boiler of a forty-horse-  
40 power engine, and one application every week is sufficient for the most difficult cases. The quantity to be applied and the number of applications must be governed in all cases by the capacity of the boiler and the quality of  
45 the water used in the boiler. Small boilers and good water will require less material and fewer applications than large boilers and impure water.

Sweet-oil neutralizes the acrid power of the ammonium to some extent, and prevents it  
50 from eating into the surface of the metal after the incrustation has been penetrated and removed thereby, and also prevents the sediment and calcareous matter found in the water from adhering to the boiler and forming scales  
55 and crust; but sweet-oil is much more costly than lard-oil, and we therefore add lard-oil to our composition to reduce the cost of the oils required in our compound.

Petroleum penetrates the scale on the boiler  
60 more readily than sweet-oil and lard-oil, but is more costly than Virginia black oil or petroleum residuum, and we therefore use the Virginia black oil or petroleum residuum in our compound, in place of petroleum, to ac-  
65 complish the result and to save expense.

Sugar aids in clarifying the water in the boiler by gathering impurities in a scum on the surface of the water, and thereby helps to prevent the formation of scale on the boiler-  
70 surface, and by so doing diminishes the quantity of ammonium and other ingredients required and the cost of our complete compound.

Any quantity of our compound can be readily  
75 prepared of the ingredients named in the proportions and manner stated, and readily and safely applied, as set forth, by novices as well as by experts, to more effectually prevent and remove scales and crusts in boilers, and at less  
80 expense than with any other material or compound heretofore known and used for the purpose.

We claim as our invention—

The herein-described composition of matter  
85 for the prevention and removal of incrustations in steam-boilers, consisting of chloride of ammonium, sweet-oil, lard-oil, Virginia black oil or residuum of petroleum, and sugar, in the proportions specified.

JOHN B. SOWASH.  
GARDNER V. WRIGHT.

Witnesses:

BUTLER BIRD,  
D. T. MILES.