

UNITED STATES PATENT OFFICE.

JOSEPH G. ROGERS, OF MADISON, INDIANA.

IMPROVEMENT IN PREVENTING INCRUSTATION IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **103,662**, dated May 31, 1870.

I, JOSEPH G. ROGERS, of the city of Madison, county of Jefferson and State of Indiana, have invented an Improved Process for Removing and Preventing Scale in Steam-Boilers, of which the following is a specification:

My invention consists essentially in the use of protoxalate of soda, with a tenth part, more or less, of caustic soda, for precipitating all saline matter in boiler-water, in such a light, loose form that it is not deposited at all, but is kept in suspension by the force of the boiling currents until it reaches the mud-receiver, where (there being but little current) it subsides and is readily blown out.

All saline matter being thus separated from the water and driven from the boiler, no scale can form. At the same time the said compound gradually decomposes already existing scale, and converts it into the same floating precipitate above mentioned, to be eliminated from the boiler in the same way.

Pre-existing scale being removed, and its formation being prevented in this manner, the boiler is made clean in a short time, and can readily be kept so by a continued use of said compound without injury to boiler, thus obviating much expense, danger, and trouble.

In order to enable those skilled in the pertaining arts to use my process, the following details are given:

Thoroughly mix ten (10) parts of protoxalate of soda with about one (1) part of caustic

soda, with or without water or other proper vehicle.

This compound is to be introduced into the boiler-water through the heater, tank, man-hole, safety-valve, or otherwise, at short intervals, daily, semi-weekly, or weekly, in the proportion of one (1) ounce to twenty (20), forty (40), or sixty (60) barrels of water evaporated, according to quality of water.

At short intervals, every second day at most, the mud-receiver should be emptied by blowing out for a few minutes.

In from one to fourteen weeks, according to quality of water and thickness of scale, the boiler having been cleaned as usual in the meantime, all scale will have been removed, and afterward a lesser amount of the compound will suffice to keep the boiler entirely clean.

All corrosive action will be prevented, and all small leaks stopped by its operation.

I claim as my invention—

The use of protoxalate of soda, combined with caustic soda, substantially as above set forth, for the purpose of removing and preventing scale in steam-boilers, substantially as described.

JOSEPH G. ROGERS.

Witnesses:

WM. H. ROGERS,
H. A. HOLMES.