

UNITED STATES PATENT OFFICE.

EDWARD KIRK, OF SHARON, PENNSYLVANIA.

IMPROVEMENT IN COMPOUNDS FOR TREATING IRON.

Specification forming part of Letters Patent No. **149,225**, dated March 31, 1874; application filed March 14, 1874.

To all whom it may concern:

Be it known that I, EDWARD KIRK, of Sharon, in the county of Mercer and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Iron; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a composition of matter used in the manufacture of iron; and it consists in a compound formed by mixing the following ingredients together in about the following proportions: To a ton of iron, saltpeter, one-half pound; concentrated potash, one pound; borax, one-quarter pound; sal-ammoniac, one-quarter pound.

The above ingredients are pulverized and then thoroughly mixed together, and the resulting mixture placed in cans to prevent the action of the air upon the mixture, and also for convenience of transportation.

This compound is to be introduced into the furnace with the iron or ore and the fuel.

The effect of the saltpeter upon the iron or ore is to render the iron more homogeneous in its

structure throughout the mass, and to produce the same quality of iron in the whole casting.

The effect of the concentrated potash upon the iron is to soften the latter materially, and it also acts as a flux, yielding a greater amount of metal than would be obtained without its use, the latter effect also being increased by the use of the borax in the compound.

The object of the employment of sal-ammoniac is to prevent the introduction of the sulphur contained in the fuel into the iron.

I do not mean to confine myself to precisely the amounts of the ingredients stated above, as they may be varied without departing from the spirit of my invention, with different ores and different materials used for fuel, which vary in their composition.

I claim as my invention—

The compound in about the proportions herein described, and for the purposes set forth.

EDWARD KIRK.

Witnesses:

MELVILLE CHURCH,
NATHAN K. ELLSWORTH.