

UNITED STATES PATENT OFFICE.

EDWIN F. HOUGHTON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CONVERTING IRON INTO STEEL.

Specification forming part of Letters Patent No. 128,042, dated June 18, 1872.

To all whom it may concern:

Be it known that I, E. F. HOUGHTON, of the city and county of Philadelphia, Pennsylvania, have invented a new and Improved Mode of Converting Iron into Steel; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying specimens.

My invention consists in the combination of bone carbon and hydrocarbon oils.

The object of the invention is to convert iron into steel economically, and to utilize the waste bone accumulated in the process of manufacture of the article known as cosmoline.

In order to enable others to use and practice my invention, I will proceed to describe the operation.

The bone carbon is impregnated with hydrocarbon oil. The wrought-iron is case-hardened by immersion in the described bone carbon, heated to redness.

The surface of the iron is of extreme hardness, and the metal is not blistered—a desirable feature in finished work.

What I claim, and desire to secure by Letters Patent, is—

The combination of bone carbon with hydrocarbon oils, for the purpose specified.

EDWIN F. HOUGHTON. [L. S.]

Witnesses:

THOS. SHAW,
JAMES KEENAN.