

UNITED STATES PATENT OFFICE.

OLIVER WILLIAMS, OF CATASAUQUA, PENNSYLVANIA.

IMPROVEMENT IN UTILIZING BESSEMER-STEEL SCRAP.

Specification forming part of Letters Patent No. **197,193**, dated November 13, 1877; application filed March 29, 1877.

To all whom it may concern:

Be it known that I, OLIVER WILLIAMS, of Catasauqua, Lehigh county, Pennsylvania, have invented a new and useful Improvement in Utilizing Steel Scraps, of which the following is a specification:

The object of my invention is to utilize scrap Bessemer steel by puddling it with pig-iron, and thereby producing a high grade of wrought-iron, or, as it may be termed, "carbonized wrought-iron."

My invention may be carried into effect, in an ordinary puddling-furnace, in the following manner:

The scrap-steel, which should be in comparatively small pieces, is placed in a mass on the bed of the furnace, and this mass should be covered with ordinary cinder or other material, in order to prevent oxidation. Above the mass of steel-scrap I place the pig-iron. When the steel has been reduced by the heat to a pasty mass, and the cast-iron is melted, I proceed to puddle them together by the usual puddling operations, and at the proper time remove the puddled mass, subject it to the action of squeezers or hammers, and, finally, roll it into bars.

Different proportions of steel-scrap and pig-iron may be used. A charge of two hundred

and fifty pounds of cast-iron, combined with a similar charge of scrap-steel, has produced good results; so, also, has a charge of three hundred pounds of cast-iron and two hundred pounds of steel-scrap. In many tests I have departed to a considerable extent from these proportions without any material change in the result.

The wrought-iron thus produced is remarkably tough, has a texture resembling that of steel, will receive a high polish, and is superior in other respects to the highest grade of wrought-iron.

I do not desire to claim, broadly, the puddling of steel and cast-iron together; but

I claim as my invention—

The mode herein described of utilizing Bessemer-steel scraps—that is to say, by placing a mass of the scraps on the bed of the furnace, a mass of cast-iron on the scraps, and, when the cast-iron is melted, puddling it with the steel, all as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OLIVER WILLIAMS.

Witnesses:

HERMANN MOESSNER,
HARRY SMITH.