

UNITED STATES PATENT OFFICE.

HENRI SCHNEIDER, OF LE CREUZOT, FRANCE.

PROCESS OF MANUFACTURING THE ALLOYS OF CAST-IRON AND NICKEL.

SPECIFICATION forming part of Letters Patent No. 415,657, dated November 19, 1889.

Application filed December 3, 1888. Serial No. 292,520. (Specimens.)

To all whom it may concern:

Be it known that I, HENRI SCHNEIDER, manager of the firm Schneider & Cie., of Le Creuzot, (Saône-et-Loire,) in the Republic of France, manufacturers, have invented Improvements in Manufacturing the Alloys of Cast-Iron and Nickel, of which the following is a specification.

This invention has reference to the manufacture on a commercial scale of cast or pig iron alloyed with nickel.

Many experiments have heretofore been made with alloys of iron or steel and nickel, and it is known that the addition of a small proportion of the latter metal to the former imparts thereto properties very valuable for certain uses. It is, however, extremely difficult to incorporate nickel with iron and steel, particularly when it is attempted to produce these alloys on a commercial scale. I have discovered that such alloys can be produced by making, as a preliminary product, an alloy or compound of cast-iron and nickel in a crucible, cupola, or open-hearth furnace. This product or alloy, while specially useful for the manufacture of iron and nickel and steel and nickel alloys, may be used for castings for a variety of purposes, and the present application is confined to the production of the cast-iron alloy.

The manufacture of alloys of nickel and steel forms the subject-matter of another application filed December 3, 1888, Serial No. 292,518.

In carrying out my invention I charge a suitable furnace with nickel filings or scrap or waste nickel and ordinary cast or pig iron with carbonaceous matter; or the nickel may be in the form of nickelized compounds or

coke. The operation may advantageously be carried on in a reverberatory furnace under a layer of anthracite to avoid oxidation. The alloy, which issues as a direct product of the furnace, contains from five to thirty per cent. of nickel, (though the invention is not limited to these proportions,) and is remarkable for its great elasticity and strength, and also for a true tenacity and malleability—properties which may be still further developed by chilling or tempering in well-known ways. The alloys are consequently suitable for use in the manufacture of castings of all descriptions, and to the production of armor-plates, projectiles, and the like.

I claim as my invention—

1. The herein-described process of manufacturing alloys of cast-iron and nickel by charging a suitable furnace with cast or pig iron, nickel, or a composition containing nickel, and melting together, as set forth.

2. The herein-described process of manufacturing alloys of cast-iron and nickel by charging a suitable furnace with cast or pig iron, nickel, or a nickel compound, and carbonaceous matter, with a superposed layer of anthracite, and melting together, as set forth.

3. The herein-described alloy of cast-iron and nickel rich in the latter metal, said alloy being distinguished by homogeneity, tenacity, capacity for tempering, and by the other characteristics set forth.

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

HENRI SCHNEIDER.

Witnesses:

CHARLES BRÉNOY,
LÉON FRANCKEN.