

UNITED STATES PATENT OFFICE.

FRANCIS PORTER, OF TICONDEROGA, NEW YORK, ASSIGNOR TO NEW YORK ORE SEPARATOR COMPANY.

IMPROVEMENT IN METAL COMPOSITIONS.

Specification forming part of Letters Patent No. 190,361, dated May 1, 1877; application filed October 27, 1876.

To all whom it may concern:

Be it known that I, FRANCIS PORTER, of Ticonderoga, in the county of Essex and State of New York, have invented a new and Improved Metal Composition, which invention is fully set forth in the following specification.

My invention is intended particularly for making rollers, and especially such as are intended to be used for crushing ore; but it can be used for any other purpose for which it may be desirable.

The disadvantage litherto found to exist in all rollers used for the purpose of crushing ore has been that those made of ordinary cast-iron are too soft and wear rapidly; and if made of chilled iron or Franklinitite, they are liable to break or wear uneven or in gutters; while if made of steel, they are too brittle, and wear uneven.

I make use of certain proportions of different kinds of pig-iron and of cast-steel, which are all melted together and cast, and thereby I obtain a very strong and durable roller.

In carrying out my invention I take, white Bessemer pig-iron, one thousand pounds; No. 5 Bessemer pig-iron, four hundred and fifty pounds; No. 3 Bessemer pig-iron, four hundred pounds; cast-steel, two hundred pounds, and melt these ingredients together in a suit-

able cupola, then proceed to cast the desired articles of the composition thus obtained in molds of suitable shape.

It must be remarked that the various grades of pig-iron above mentioned are used in the manufacture of Bessemer steel, the white pig-iron being extremely hard, while the No. 3 pig-iron is very soft, and the No. 5 pig-iron is also known by the term "mottled iron."

By mixing these different kinds of pig-iron with cast-steel a composition is obtained which is exceedingly hard, and at the same time tough, and not liable to crack or be otherwise damaged by coming in contact with other hard substances.

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

A metal composition consisting of No. 3 and No. 5 pig-iron, white pig-iron, and cast-steel, all melted together, in about the proportions set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 23d day of October, 1876.

F. PORTER. [L. S.]

Witnesses:

WILLIAM HOOPER,
J. B. RAMSAY.