

UNITED STATES PATENT OFFICE.

HELEN EMETT, OF NEW WESTMINSTER, BRITISH COLUMBIA, CANADA, ADMINISTRATRIX
OF GEORGE HENRY HAWKINS EMETT, DECEASED.

HARDENING OF CAST-IRON AND THE LIKE.

No. 878,053.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed February 17, 1906. Serial No. 301,679.

To all whom it may concern:

Be it known that GEORGE HENRY HAWKINS EMETT, late a subject of the King of Great Britain, and late a resident of New Westminister, British Columbia, Canada, but now deceased, did invent certain new and useful Improvements Relating to the Hardening of Cast-Iron and the Like, of which the following is a specification.

10 This invention relates to a composition which, when added to, and mixed with, molten cast iron or the like, has the effect of hardening the resulting metal, the degree of hardness being dependent upon the proportions adopted.

15 The invention is particularly applicable to castings for rock crushers, stamp mills, sheaves for wire ropes, and the like articles, where a hard metal is required; the resulting metal can be made so hard and tough that it will withstand the action upon it of the hardest steel, and it can be made of uniform hardness throughout, or, if required, only the desired part of the casting may be hardened; 20 the rest being left comparatively soft.

25 According to this invention a compound prepared according to the following formula is made, and it is added to and well mixed with the molten metal in the different proportions hereinafter given to suit the different requirements.

30 The compound consists of:—Flowers of sulfur 8 pounds, dry red lead 1 pound, lamp black 4 ounces. These ingredients are ground in a mill, then run through a sieve, and well mixed together.

The following gives the proportion of compound and metal for typical cases, and may be taken as a guide in selecting the proportions for any given purpose:—For general 40 purposes, 1 lb. of the compound is added to 30 lbs. of molten iron; for rock crusher castings (chilled), 1 lb. of compound to 40 lbs. of iron; for sheaves (not chilled) 1 lb. of compound to 25 lbs. of iron; and for sheaves with 45 soft core, 1 lb. of compound to 30 lbs. of iron.

The proportions given both for the composition of the compound, and for the proportions of the latter to the iron, for the different purposes, are of course approximate; 50 these may be varied and equivalent substances substituted for those mentioned within the limits of the invention.

I claim as the invention of GEORGE HENRY HAWKINS EMETT the following: 55

1. The hereindescribed compound for hardening iron, consisting of flowers of sulfur, red lead and lamp black.

2. The hereindescribed compound for hardening iron consisting of flowers of sulfur, 60 dry red lead and lamp black in substantially the proportions of 8 pounds of sulfur, 1 pound of lead and 4 ounces of lamp black.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses. 65

HELEN EMETT,
*Administratrix of the estate of George Henry
Hawkins Emmett, deceased.*

Witnesses:

JOSEPH ROWAN GRANT,
GORDON EDWARD CORBOULD.