

UNITED STATES PATENT OFFICE.

HENRI HERRENSCHMIDT, OF MELBOURNE, VICTORIA.

IMPROVEMENT IN BATHS FOR TEMPERING ARTICLES OF IRON AND STEEL.

Specification forming part of Letters Patent No. **183,804**, dated October 31, 1876; application filed April 7, 1876.

To all whom it may concern:

Be it known that I, HENRI HERRENSCHMIDT, of Melbourne, in the British Colony of Victoria, civil engineer, have invented a certain Bath for Tempering Articles of Iron and Steel, to be used instead of water in the process of tempering, of which the following is a specification:

My bath is made by mixing together one hundred parts of muriatic acid, twenty-four parts of nitric acid, and fourteen parts of sulphate of zinc, and soaking therein for twenty-four hours some pieces of cast-iron, white metal preferred. The undecomposed portion of the cast-iron is then removed, and the mixture diluted with one thousand parts of cold water, when it is ready for use. All the parts are by weight.

In using my bath it is to be treated in the same way as if it were water in which the heated steel is to be tempered. If, however, the steel is not compact, it must first be welded. When the bath begins to boil from repeated

use, it must be allowed to cool, as it should not be used above the boiling-point. It may be kept in an open vessel, as it does not lose its efficacy by exposure to the atmosphere.

Steel of every quality may be refined and improved by my bath; but its effect is more obvious in inferior kinds, and that not only on the surface, but throughout the whole body of the metal. It is particularly applicable to tools; but large masses of metal may be refined and improved by it, if immersed for a sufficient time.

I claim as my invention—

The bath for tempering iron and steel articles, which consists of muriatic and nitric acids, sulphate of zinc, iron, and water, prepared substantially in the manner and proportions herein specified.

H. HERRENSCHMIDT.

Witnesses:

EDWARD WATERS,
W. S. BAYSTON.