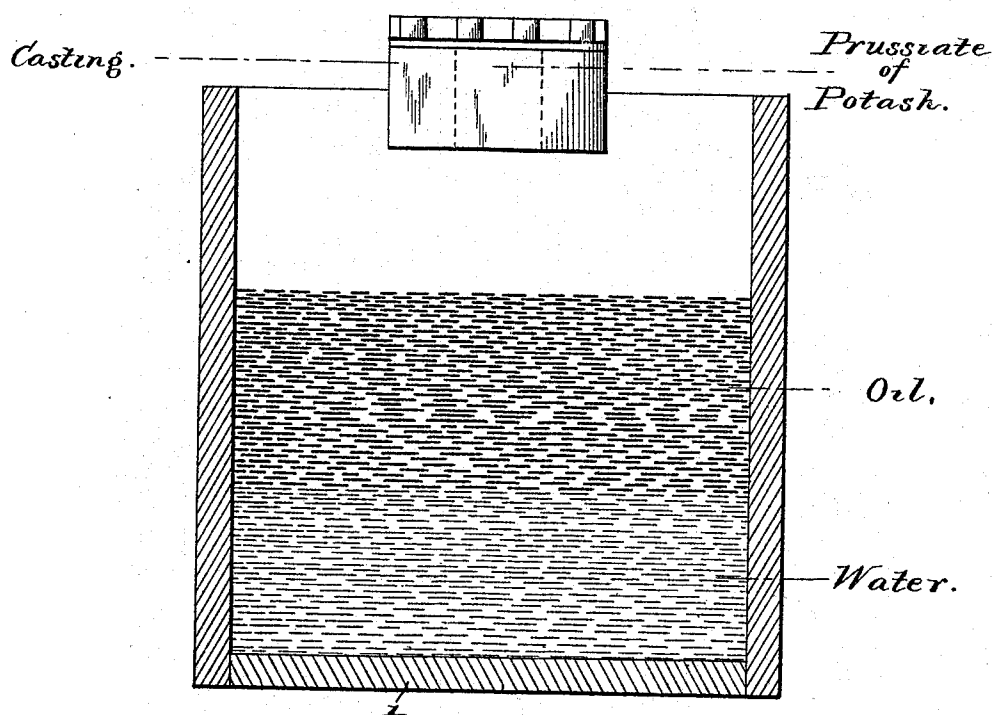


(No Model.)

W. T. REASER.
METHOD OF HARDENING CAST STEEL.

No. 552,546.

Patented Jan. 7, 1896.



Inventor
Warren T. Reaser,

Witnesses,
F. Thayer.

D. T. Holmquist

By his Attorneys.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

WARREN T. REASER, OF LINCOLN, NEBRASKA.

METHOD OF HARDENING CAST-STEEL.

SPECIFICATION forming part of Letters Patent No. 552,546, dated January 7, 1896.

Application filed November 30, 1894. Serial No. 530,449. (No specimens.)

To all whom it may concern:

Be it known that I, WARREN T. REASER, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Method of Hardening Cast-Steel, of which the following is a specification.

This invention relates to methods of hardening cast-steel, and it has for its object to provide an improved method of this character that will positively insure the homogeneous hardening or toughening of cast-steel, while at the same time providing for an extra hardening of any particular part or parts of the casting requiring great strength and a hard wearing-surface.

To this end the main and primary object of the present invention is to provide a simple and efficient method adapted to be employed for hardening steel castings of all kinds, but which will be especially adapted for hardening the wearing-surfaces of the rack-plate castings for rolling supports for balanced slide-valves, such as set forth in patent numbered 404,363, granted to me May 28, 1889.

In the carrying out of my improved method no special apparatus is necessary; but in the accompanying drawing the figure is a sectional view of a tank or tub in connection with which the method is usually carried out.

Referring to the drawing, 1 designates a tank or tub of any suitable size or capacity, and said tub is adapted to contain a hardening bath composed of separate strata of water and oil. Owing to the lightness of the oil the strata thereof is necessarily above the strata of water, and to insure a proper hardening of the castings introduced into the combined bath an equal depth of water and of oil is usually observed. Before introducing the

casting to be hardened into the combined hardening bath of oil and water the casting, whatever may be its character, is first heated to a cherry-red heat with prussiate of potash applied to the surface or surfaces of the casting requiring a greater hardening than the body of the casting. When the casting having the prussiate of potash thereon has been heated to the desired temperature, the same is then instantly plunged down into the combined bath, passing successively through the strata of oil into the strata of water. By reason of having the combined bath of oil and water placed in a single tank or tub it will be noted that the heated casting is passed successively into the bath of oil and of water without intermediate exposure, and the casting in the process of cooling is therefore given the desired hardening and tempering by the combined action of the oil and water, both of which are desirable hardening agents.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

An improvement in the method of hardening cast steel which consists in applying a coating of prussiate of potash to the surface of the casting to be hardened, heating the casting with the prussiate of potash thereon to a cherry red heat, and then immediately plunging the heated casting through a bath of oil into a sub-adjacent bath of water without intermediate exposure, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WARREN T. REASER.

Witnesses:

JOHN H. SIGGERS,
G. C. SHOEMAKER.