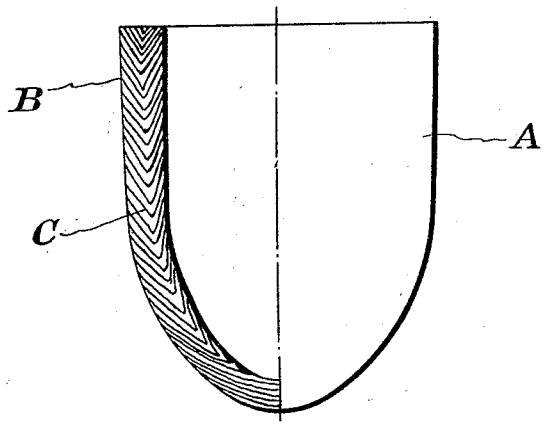
Sept. 4, 1923. 1,466,739

K. NAKAMURA

GRAPHITE CRUCIBLE

Filed March 9, 1922



Inventor.

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BY Richards & Geier.

ATTYS.

Patented Sept. 4, 1923. 1,466,739

UNITED STATES PATENT OFFICE.

KOZO NAKAMURA, OF TOYOURA-GUN, JAPAN, ASSIGNOR TO HIKOSHIMA RUTSUBO KABUSHIKI KAISHA, OF TOYOURA-GUN, YAMAGUCHI, JAPAN, A CORPORATION OF JAPAN.

GRAPHITE CRUCIBLE.

Application filed March 9, 1922. Serial No. 542,230.

To all whom it may concern:

Be it known that KOZO NAKAMURA, a subject of the Emperor of Japan, residing at No. 3371 Hikoshima, Hikoshima-mura, Toyoura-gun, Yamaguchi Prefecture, Japan, has invented certain new and useful Improvements in a Graphite Crucible, of which the following is a specification.

This invention relates to graphite crucibles such as are commonly used in chemical or metallurgical laboratories or crucible furnaces for smelting various metals. As heretofore constructed the side walls of these crucibles were composed of plane layers of particles of graphite extending either in a horizontal, vertical or inclined direction, and the pressure to which the side wall of these known types of crucibles was subjected in the operation of manufacturing the same was not very great. While these prior art crucibles are capable of withstanding high temperatures, they would frequently crack or split when local and non uniform contraction or expansion in the side walls thereof was caused in discharging of the melted metal or in the charging of new charges into the crucible. This cracking or splitting occurs parallel to the plane layers of the side walls after the repeated working of the crucible and this is a great defect of the prior art constructions even though they have the property of ordinarily resisting high temperatures.

The object of this invention therefore is to provide a new and improved construction of a crucible in which the objectionable cracking and splitting of the side walls thereof is overcome.

In the accompanying drawing is shown a crucible constructed in accordance with my invention and in the figure of the drawing the right hand side of the crucible is shown in elevation, while the left hand side is shown in section.

According to my invention the cracking and splitting of the side walls of the crucible is eliminated by modifying the structure of a part or the whole of the side wall by forming the wall of a plurality of juxtaposed V shaped layers of graphite.

Referring to the drawing A represents the crucible, B the side wall thereof and C the plurality of V shaped layers. The crucible shown in the drawing is preferably formed by piling up flakes of graphite in an outer mold in plane horizontal layers. The center part of the material is then removed substantially, to permit the insertion of an inner mold which is constructed to be expansible and capable of having great pressure applied horizontally thereto in such a way as to move the sections of the inner mold towards the outer mold. The material occupying the space between the outer and inner mold is thus squeezed between the inner mold when the inner mold is expanded and as it can not escape outwards it is finally bent to form the V shaped layers shown in section at the left hand side in the figure of the drawing. When the material is thus compressed any air which may be within the layers of the graphite is entirely driven off and a compact mass of V shaped layers is provided along practically the entire side wall B.

When the side wall of the crucible is constructed as heretofore set forth any small cracks which might be caused by rapid changes of temperature differences during the use of the crucible are prevented from penetrating entirely through the crucible because each of the layers acts as a protective sheet from cracks extending either from the outside or from the inside of the side walls. Furthermore, the V shaped layers permit a greater flexibility for expansion and contraction because of heat changes as the form of the layers allows for expansion and contraction equally in three directions, whereas the usual form of plane layers can only expand or contract in one direction.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

A crucible having the side walls thereof constructed of a plurality of superimposed substantially V shaped layers of graphite.

In testimony whereof he affixes his signature.

KOZO NAKAMURA.