June 17, 1924. 1,498,323

D. B. LA COUR

HEATING CARTRIDGE

Filed Nov. 2, 1922

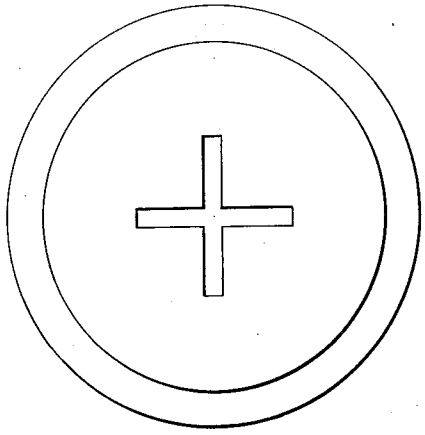


Fig 1.

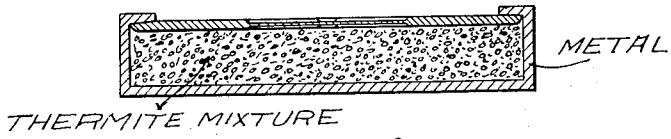


Fig. 2.

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DAN BARFOD LA COUR, OF CHARLOTTENLUND, DENMARK.

HEATING CARTRIDGE.

Application filed November 2, 1922. Serial No. 598,695.

To all whom it may concern:

Be it known that I, DAN BARFOD LA COUR, a subject of the King of Denmark, residing at Charlottenlund, Denmark, have invented certain new and useful Improvements in Heating Cartridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which is appertains to make and use the same.

Alumino-thermic mixtures for the production of so-called heating cartridges in which the loose or briquetted mixture is accommodated in a capsule adapted to hold it together and to protect it against moisture have been used for some considerable time. Such capsules have hitherto been made mostly of sheet iron.

This invention is founded on the recognition that an alumino-thermic mixture is composed of two basic substances; namely an oxygen compound of a metal and a loose powder of one or several other metals. These two constituents are intimately mixed and when the mixture is united an extremely violent reaction takes place by which the oxygen is transferred from the metal oxide to the loose metal powder with liberation of material quantities of heat.

The oxygen compound is, usually, an iron compound and the metal partaking of the reaction is or contains mostly aluminium.

Now it has been found that after the reaction has been initiated such parts of the metal partaking of the alumino-thermic reaction which are not mixed with the metallic oxygen compound in a finely divided condition can also be brought into the reaction.

On this feature the present invention has been based inasmuch as the metallic cover of the heating cartridge is itself made of a metal taking part in the alumino-thermic reaction. When using the cartridge, therefore, the capsule made, for example, of sheet aluminium melts too and thereupon takes part in the chemical reaction. This expedient enables a considerable amount of economy both in regard to the weight of the cartridge and cost of its manufacture because the surrounding capsule need not be separately made and arranged constituting as it does a part of the reaction substance.

A further advantage results from the manufacture of the cartridge casing or capsule from sheet-aluminium for example. Known cartridges of this kind are generally provided with an ignition means which is introduced through the lid of the casing. By the use according to this invention of thin aluminium sheets for the manufacture of these casings, the lid may simply be pierced by means of a pointed object for the introduction of a rough weather match or the like.

By making the aluminium sheet at the requisite place particularly thin by mechanical means such as by pressing, the match can itself be employed for piercing and a special tool for this purpose can therefore be dispensed with. As compared with a lid made of sheet iron which generally must at the outset be provided with an opening specially punched for the above purpose the lid according to this invention may remain closed in the air-tight manner until immediately before the actual use of the cartridge.

The accompanying drawings are intended to illustrate a practical form of the invention.

Fig. 1 is a top plan view of the cartridge.

Fig. 2 is a central cross section.

As shown the cartridge consists of a cylindrical shallow container adapted to hold the heat evolving mixture and a cover adapted to be secured in any suitable manner to the lower face of an annular flange on the container. The cover may have a weakened or reduced portion adapted to be easily pierced by the igniting instrument or match. In the illustration the reduced portion of the cover is in the form of a cross, but this particular form is not essential.

What we claim and desire to protect by Letters Patent is:—

1. A heating cartridge consisting of a thermite mixture enclosed in a metallic casing which itself can take part in the thermic reaction when initiated.

2. A heating cartridge consisting of an alumino-heat evolving mixture inclosed in a metallic casing which itself can take part in the thermic reaction when initiated.

3. A heating cartridge consisting of an alumino-heat evolving mixture enclosed in an aluminum casing which is adapted to take part in the reaction.

4. A heating cartridge consisting of a

thermite mixture enclosed in a metallic casing adapted to take part in the thermic reaction, said casing being provided with relatively thin portions adapted to be easily pierced for the introduction of suitable ignition means.

5. A heating cartridge consisting of an alumino-heat evolving mixture enclosed in an aluminum casing which is adapted to take part in the reaction, said casing being provided with relatively thin portions for the purpose described.

In testimony whereof, I affix my signature.

DAN BARFOD LA COUR.