INVENTION

Crushed Rock Material Puts Out Incendiaries

➤ A METHOD of extinguishing burning magnesium which requires neither stream, jet nor spray of water is described in U. S. patent 2,294,532, granted to Joseph J. Fahey and Michael Fleischer of Washington.

The inventors have assigned all rights to the U. S. Government without payment of any royalties to themselves.

The method described is to cover the bomb with a crushed rock material which melts at the temperature of burning magnesium (1,800 degrees to 2,700 degrees Fahrenheit) and forms a highly viscous but glassy layer which completely excludes access of air to the bomb.

The inventors give a long list of rock materials, which they call "vitrescible" minerals, which meet these specifications —but the best of them is feldspar. They are cheap and abundant. They also list a number of artificial inorganic "vitrescible" minerals.

To extinguish a bomb, they direct, it is first necessary to wait until the thermite core has burnt itself out, for this like an explosive provides its own oxygen. Then with a long-handled shovel the bomb is covered with the vitrescible material. About 40 pounds of it, which can be carried in a 12 quart bucket, will extinguish a two or four pound bomb, in 15 to 30 seconds, according to their experience.

Other materials that have been used for smothering bombs are unsatisfactory the inventors say. Sand permits air to enter, and only prevents the fire from spreading while the bomb burns itself out. Clays and the like contain water which aggravate the fire instead of extinguishing it, while bituminous and resinous materials are themselves combustible and evolve an acrid smoke.

Science News Letter, September 12, 1942

INVENTION

Beryllium and Lithium Prevent Alloy Oxidation

➤ HOW SMALL amounts of beryllium and lithium, from about 0.001% to about 0.02%, added to aluminum-magnesium alloys will prevent oxidation of the magnesium and the formation of dross on the surface of the metal when melted, is revealed in U. S. patent 2,293,864 issued to Philip P. Stroup of New Kensington, Pa. The rights have been assigned to the Aluminum Company of America.

The oxidation and the formation of dross carry away a good deal of the precious magnesium. The use of beryllium and lithium not only prevent this waste but also obviate the use of protective fluxes or an inert atmosphere above the molten metal.

While the inventor prefers equal quantities of the two metals, he says that in some cases the amount of lithium can be increased and the amount of the more expensive beryllium decreased so long as the total amount is kept the same. (Beryllium costs about $15 a pound).

Beryllium is slightly heavier than magnesium and both are about two-thirds as heavy as aluminum. Lithium is the lightest metal known, being only slightly more than half as heavy as water. It therefore floats like wood. In fact many hard woods are heavier than lithium. Both of these metals act as hardeners to aluminum alloys. Yet while beryllium itself is hard, lithium is soft.

Science News Letter, September 12, 1942