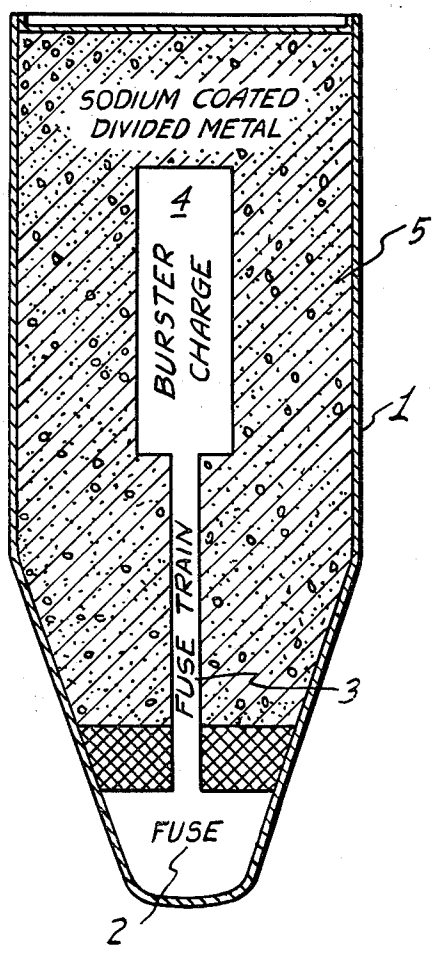
Jan. 1, 1957 R. C. WADE 2,775,938

FLASH BOMB

Filed Sept. 27, 1951



Inventor
Robert C. Wade
BY Louis Burgess
Attorney

United States Patent Office

2,775,938

Patented Jan. 1, 1957

2,775,938

FLASH BOMB

Robert C. Wade, Cincinnati, Ohio, assignor to National Distillers Products Corp., a corporation of Virginia

Application September 27, 1951, Serial No. 248,473

2 Claims. (Cl. 102—6)

This invention is a new and useful piece of military ordnance of the type generally known as a flash bomb. As diagrammatically indicated in the figure, such bombs consist of a casing 1 which may be in the shape of a projectile, as shown, adapted to be discharged from a gun, or alternatively may be in the form of a cylinder with plane ends, where for example it is to be dropped from a plane. In this case the piece may also be provided with a parachute attachment if for any reason it is desired to slow down its rate of descent. In the casing 1 there is provided a fuse diagrammatically indicated by 2, which may be either of the contact or of the proximity type. Fuse train 3 extends from the fuse to a centrally located bursting charge 4. Bursting charge 4 is surrounded by a mass 5 of combustible metal in divided form. Magnesium is ordinarily preferred for this purpose because it ignites rapidly and burns with avidity. Aluminum may also be used, and for special purposes iron in divided form has also been employed.

Bombs of this general type may be employed either to illuminate an area or for incendiary or anti-personnel purposes.

This improvement relates to the charge of solid combustible metal in divided form. Even with a charge of magnesium, which is the most highly combustible of the metals ordinarily used, a part will not be ignited by the bursting charge and will therefore be wasted. This wastage is even greater with metals which are less readily combustible, as for example with aluminum and iron.

In accordance with this invention, this difficulty is eliminated by providing the individual particles of the combustible metal with a thin film of sodium. This renders the particles spontaneously ignitable and eliminates the waste above referred to. It has the further advantage that it makes it possible to substitute other metals, particularly aluminum, for magnesium to a greater extent, thereby resulting in substantial economies. It has the

further advantage that if the bomb is to be used for anti-personnel purposes, the particles of the divided metal may be larger than would otherwise be required, thereby enabling them to be projected a greater distance and imparting to the bomb a substantially greater radius of effective action.

In carrying out this invention the particles of the normally solid, combustible metal are admixed with liquid sodium in an atmosphere inert to sodium at a temperature at which the liquid sodium wets the surface of the normally solid metal and forms a film of sodium thereon. This wetting takes place readily at and above 200° C. for aluminum and iron and 250° C. for magnesium. This temperature is not critical and in carrying out the invention it is only necessary to mix the normally solid combustible metal in divided form with the sodium and gradually elevate the temperature while maintaining an inert atmosphere until wetting occurs. The amount of the sodium should not be substantially greater than is required to wet the surfaces of the metal since an excess would produce a continued phase of liquid sodium which would render the mass pasty and complicate charging the bombs. An effective film can be provided by the use of sodium in the ratio of from 5 to 25% by weight of the normally solid combustible metal.

After the particles of the normally solid metal have been wetted, the inert atmosphere should be maintained throughout all subsequent handling operations and after the material has been charged into the bomb.

I claim:

1. In military ordnance of the flash bomb type comprising a casing, a bursting charge, a fuse controlling said bursting charge and a mass of normally solid combustible metal in divided form within said casing, the improvement of a film of sodium formed on the particles of said combustible metal.

2. A flash bomb according to claim 1 in which the combustible metal is selected from the group consisting of aluminum, magnesium and iron.

References Cited in the file of this patent

UNITED STATES PATENTS

407,351	Hemsley	July 23, 1890
841,172	Nienstadt	Jan. 15, 1907
1,311,521	Johnson	July 29, 1919
1,417,475	Weeke	May 23, 1922
1,915,788	Hardy	June 27, 1933
2,273,832	Carney	Feb. 24, 1942
2,314,614	Fisher	Mar. 23, 1943
2,403,656	Grobstein	July 9, 1946
2,437,919	Oganowski	Mar. 16, 1948