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2,981,183

## TAIL INITIATION WITH NOSE FUZES

Theodore B. Godfrey, Bethesda, Md., assignor to the United States of America as represented by the Secretary of the Army

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The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

This invention relates to missile fuzing and methods thereof, especially to a method of obtaining tail initiation with a nose fuze when the missile is a predetermined distance from the target.

In certain tactical applications it is desirable that a missile burst be initiated at the tail end of the missile rather than at the nose in order to provide certain fields of force and fragmentation. For missiles which detonate upon contact with the target, the aforementioned fields are obtained by using a base detonating fuze in the tail of the missile.

The common type of proximity fuze is designed for installation in the nose of a bomb or other missile and causes nose detonation when the bomb is a predetermined distance from the target. While new types of proximity fuzes can be constructed for installation in tail assemblies of bombs or explosive missiles, the invention hereinafter described makes it possible to use a proximity fuze or mechanical time type of fuze in the nose of a bomb or other missile in conjunction with an impact type of fuze in the tail to obtain an airburst utilizing tail initiation.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from the following description and accompanying drawing in which:

The figure is a longitudinal cross sectional view of a bomb fuzed in accordance with the invention.

Referring to the figure, a proximity fuze 1 incorporating a detonator 2 is mounted in the nose of a bomb 3. In the tail assembly 4 of the bomb there is fixed a deceleration-sensitive base detonating fuze 5 having a booster charge 6 attached thereto. A propelling charge 7 in contact with the detonator 2 is positioned in the nose of the bomb 3 and is separated from the main explosive charge 8 by means of a barrier 9 which is formed in the bomb 3 adjacent its forward end.

In operation where the bomb 3 has reached a point at a predetermined distance from the target, the proximity fuze 1 causes its associated detonator 2 to fire the pro-

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pellling charge 7. The propelling charge 7 then ejects the proximity fuze 1 from the nose of the bomb 3 and at the same time causes a deceleration of the bomb 3. While the decelerative effect is not great, it is sufficient to function the deceleration-sensitive base detonating fuze 5 in the tail assembly of the bomb 3, activate the booster 6 and in turn the main explosive charge 8. As will be understood by those skilled in the art, the determination of the type and the amount of propellant charge 7 to be used is based upon the sensitivity of the base fuze 5, the mass of the missile 3, and the mass of fuze fragments ejected. Those skilled in the art will readily be able to determine these factors in any particular application.

It will be apparent that the embodiment shown is only exemplary and that various modifications can be made in method and construction within the scope of the invention as defined in the appended claim.

I claim:

In a bomb having a main explosive charge therein extending from the tail end of the bomb for a substantial distance along the bomb body, means for producing tail initiation of said main explosive charge at a predetermined distance from the target, said means comprising in combination: a proximity fuze mounted in the nose of the bomb, a barrier formed in the forward end of the bomb body intermediate said main explosive charge and said proximity fuze, a propelling charge filling the volume between said barrier and said proximity fuze, a detonator connected to said proximity fuze and fixed in said propelling charge, said detonator being adapted to fire said propelling charge when said fuze functions, the firing of said propelling charge causing said proximity fuze to be forwardly ejected from said bomb, a decelerative force thereby being transmitted to said bomb by the explosive force of said propelling charge exerted on the forward side of said barrier, said barrier serving to prevent the explosive force of said propelling charge from setting off said main explosive charge, a booster charge located in the tail of the missile, and a deceleration-sensitive base fuze also located in the tail of the missile and attached to said booster charge, said base fuze being adapted to function and activate said booster charge in response to said decelerative force, the activation of said booster thereby causing tail initiation of said main explosive charge.

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