Sept. 28, 1943. H. SMITH 2,330,636

AERIAL BOMB

Filed Dec. 22, 1941

Fig. 1.

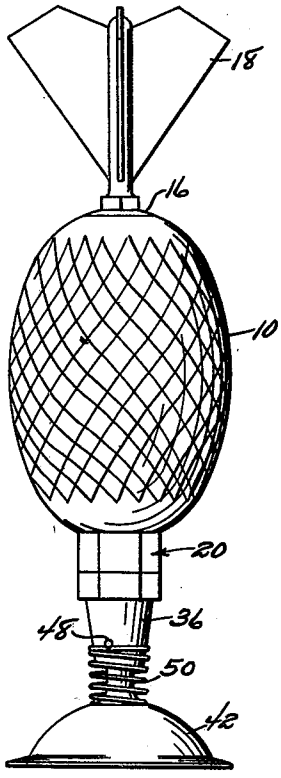


Fig. 3.

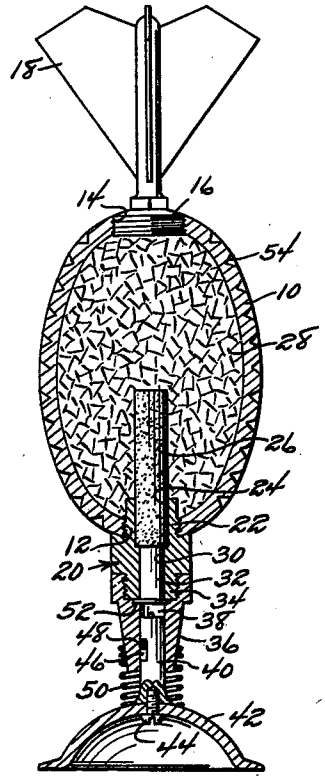
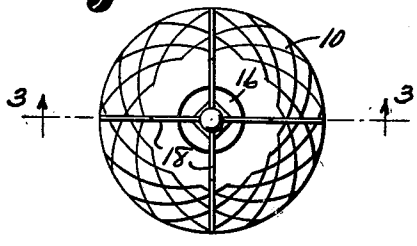


Fig. 2.



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AERIAL BOMB

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Application December 22, 1941, Serial No. 424,042

2 Claims. (Cl. 102—2)

My invention relates to aerial bombs and has among its objects and advantages the provision of an improved shrapnel bomb.

In the accompanying drawing:

Figure 1 is an elevational view of a bomb in accordance with my invention;

Figure 2 is a top plan view; and

Figure 3 is a sectional view along the line 3—3 of Figure 2.

In the embodiment selected for illustration, I make use of a cast steel shell 10 of elliptical contour when viewed according to Figures 1 and 3. Threaded bores 12 and 14 are provided in the ends of the shell 10 coaxially of its major axis. A plug 16 is threaded through bore 14, which plug is provided with stabilizing vanes 18 for effecting vertical gravitation of the bomb when released from an aircraft.

Within the bore 12 is threaded a fitting 20 having a shank 22 threadedly connected in the bore 12. Shank 22 is provided with an axial bore 24 into which one end of a stick 26 of explosive is inserted. The explosive 26 is surrounded by shrapnel 28, which completely fills the shell 10. Bore 24 communicates with a bore 30 for the reception of a percussion cap 32.

The fitting 20 includes a second threaded shank 34 for connection with a coupling member 36 having a bore 38 for slidably guiding a firing pin 40. To the outer end of the firing pin 40 is connected a cup-like impact member 42 through the medium of a screw 44.

Figure 3 illustrates the firing pin 40 as being provided with a recess 46 through which is extended a pin 48 pressed through a bore in the coupling member 36. Pin 48 constitutes an abutment for one end of a compression spring 50 having its other end abutting the cup 42 for normally holding the firing pin in the position of Figure 3.

Slot 46 is of sufficient length to permit the firing pin 40 to be driven into engagement with the percussion cap 32 when the cup 42 strikes its target. Pin 48 also limits the relative outward movement of the firing pin 40 with respect to the coupling member 36. A shoulder 52 on the coupling member 36 holds the percussion cap 32 in position.

In operation, the percussion cap 32 need not be placed in position until the bomb is loaded on the aircraft. This feature provides a bomb which may be handled and stored with a greater degree of safety. When the percussion cap 32 is slipped into position, the coupling member is threaded onto the shank 34, which holds the percussion cap in position. The bomb is then ready for use.

The cup 42 opens downwardly and traps air therein when the cup strikes water, mud, sand and other soft or loose earth formations to drive the firing pin 40 into engagement with the percussion cap 32 and explode the bomb before the latter penetrates the soft target. Thus the bomb is caused to explode above surface.

In exploding the bomb above the ground or water surface, the bomb may be employed for strafing purposes. To secure breaking of the shell 10 in small fragments, the shell is provided with a multiplicity of grooves 54 arranged spirally about the greater outside surface of the shell. Thus the shell and the shrapnel 28 are scattered in all directions over a large area.

Bore 14 is of sufficient size to permit the shrapnel to be poured therethrough to facilitate filling of the shell 10.

Without further elaboration, the foregoing will so fully illustrate my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. An aerial bomb comprising a shell having a multiplicity of lines of fracture formed therein, said shell being provided with first and second threaded openings in opposite ends thereof, a plug threaded into the first opening and provided with a stabilizing vane, a fitting having a first shank threaded into the second opening, said shank being provided with an axial bore, an explosive material in stick form having one end secured in said axial bore, said explosive material extending inside said shell, shrapnel filling said shell and surrounding said explosive material, said fitting being provided with a second threaded shank and having a second axial bore communicating with said first axial bore, a percussion cap in said second bore, a coupling member threadedly connected with said second shank and engaging the percussion cap to hold the latter in position, said coupling member being provided with a bore, a firing pin slidable in said bore, pin means acting on said coupling member and said firing pin to limit outward movement of the firing pin, a spring acting on the coupling member and the firing pin for urging the latter outwardly to hold the firing pin spaced from the percussion cap, and a target-engaging cup attached to said firing pin and opening in the direction of the target.

2. An aerial bomb comprising a shell having a multiplicity of lines of fracture formed therein,

said shell being provided with first and second threaded openings in opposite ends thereof, a plug threaded into the first opening and provided with a stabilizing vane, a fitting having a first shank threaded into the second opening, said shank being provided with an axial bore, an explosive material in stick form having one end secured in said axial bore, said explosive material extending inside said shell, shrapnel filling said shell and surrounding said explosive material, said fitting being provided with a second threaded shank and having a second axial bore communicating with said first axial bore, a percussion cap in said second bore, a coupling member threadedly connected with said second shank and engaging the percussion cap to hold the latter in position, said coupling member being provided with a bore, a firing pin slidable in said bore, pin means acting on said coupling member and said firing pin to limit outward movement of the firing pin, a spring acting on the coupling member and the firing pin for urging the latter outwardly to hold the firing pin spaced from the percussion cap, and a target-engaging means attached to said firing pin being of such area as to actuate the pin when hitting water or soft earth.

HOWARD SMITH.