Sept. 14, 1943. T. P. DUNCAN, JR 2,329,522

FIRE BOMB

Filed March 10, 1942

Fig. 1.

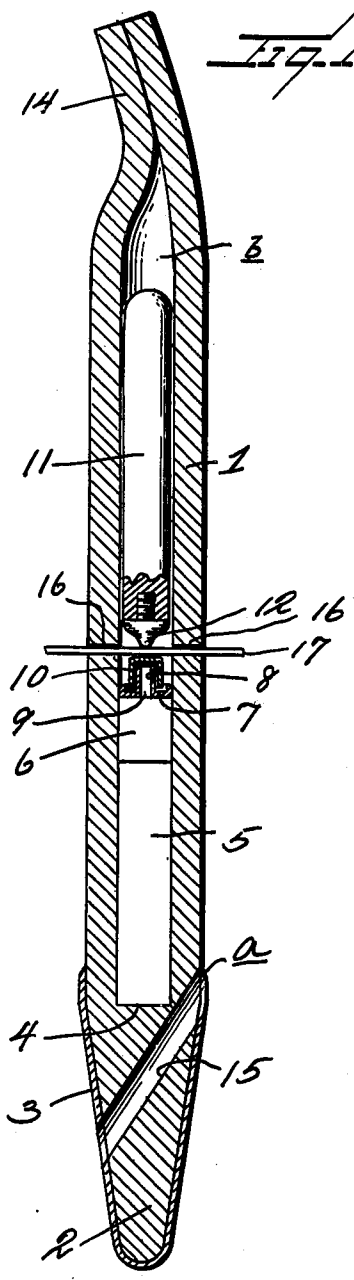


Fig. 2.

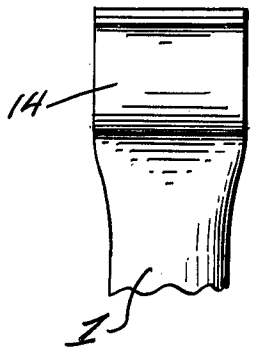


Fig. 4.

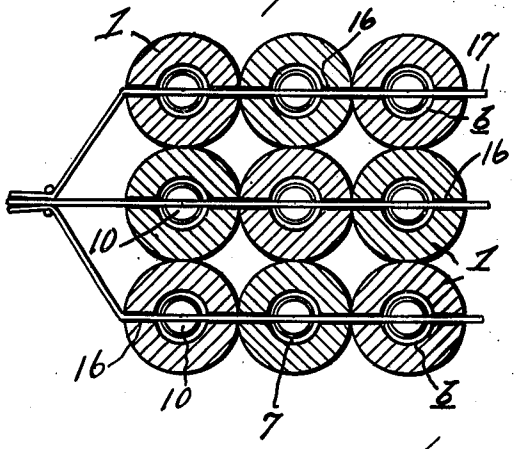
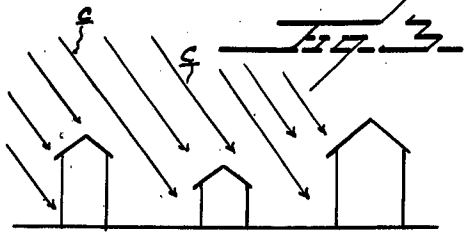


Fig. 3.



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2,329,522

FIRE BOMB

Thomas P. Duncan, Jr., Newport News, Va.

Application March 10, 1942, Serial No. 434,109

3 Claims. (Cl. 102—6)

This invention relates to a fire bomb, and it is an object of the invention to provide a device of this kind adapted to be dropped from the air and which is constructed in a manner to descend in a path of travel towards its objective on a slant with respect to the vertical so as to increase its effective hitting area.

It is also an object of the invention to provide a bomb of this kind particularly designed and adapted for use in attack from the air against the fructus and flimsy houses of over-populated countries where the gun and ku sections comprise dwellings of which approximately 95% are built relatively high off the ground and without basements and which have rice straw thatched roofs and extensively using windows and doors made of sliding wood grills made of weatherproof paper and silk.

An additional object of the invention is to provide a bomb of this kind so constructed as to have angular flight towards its objective so as to have maximum effectiveness through the sides and openings in the sides of structures and to penetrate silently through such comparatively flimsy structures hereinbefore referred to.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved fire bomb whereby certain important advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be better understood, I will now proceed to describe the same with reference to the accompanying drawing, wherein:

Figure 1 is a longitudinal sectional view taken through a bomb constructed in accordance with my invention with certain of the parts in elevation.

Figure 2 is a fragmentary view in elevation of the end portion of the device provided with the vane.

Figure 3 is a diagrammatic view indicating the general path of flight of the device, and

Figure 4 is a diagrammatic view partly in section and partly in top plan illustrating a cluster of bombs embodying my invention.

As disclosed in the accompanying drawing, 1 denotes an elongated cylindrical member of desired dimensions and which comprises a combustible material, preferably magnesium. One end portion of this member 1 is tapered to provide a penetrating nose 2 over which is snugly fitted a sheath or jacket 3 of steel or other desired metal to increase the penetrating efficiency of the member 1.

The member 1 is provided axially thereof throughout the major portion of its length with a bore *b*, the inner end 4 of which is closed, with said closed end 4 immediately adjacent to the nose 2. Within the inserted end portion of the bore 3 is a starting charge 5, preferably a thermite mixture, and within the bore 3 immediately above the charge 5 is a priming charge 6, preferably a magnesium mixture.

Fitted within the bore *b* of the member 1 and immediately adjacent to the priming charge 6 is a keeper plate 7 provided at its axial center with the tubular member or sleeve 8 disposed in a direction away from the nose 2 or toward the initially open end of the bore *b*. The bore 9 of the member or sleeve 8 is extended through the plate 7 and said bore 9 is open at its opposite ends. The outer or free end portion of this tubular member or sleeve 8 has snugly but not too tightly fitted thereon a percussion fulminate cap 10.

The end portion of the bore *b* of the member 1 remote from the nose 2 and above or beyond the keeper plate 7 has freely mounted therein an elongated firing pin 11 of a combustible material, preferably of magnesium, and the inner or working end of the pin 11 has secured thereto a pointed striking tip 12, preferably of steel.

After the proper placing of the charges 5 and 6, plate 7, cap 10 and pin 11, the initially open or outer end portion of the rod 1 is compressed, as at 14, to provide a vane angularly disposed with respect to the longitudinal axis of the member 1. This vane 14 provides means to assist in causing the member 1 when dropped to descend in a path angular to the perpendicular, as diagrammatically indicated at *c* in Figure 3.

To further assure the angular descending travel of the member 1, the nose 2 thereof has disposed therethrough an opening 15 arranged on a suitable angle in a direction lengthwise of the member 1 and in a direction reverse to the direction of angle of the vane 14. As is clearly illustrated in Figure 1 of the drawing, this opening 15 is so positioned as to have a portion thereof closely approach, as at *a*, the periphery of the bottom end 4 of the bore *b*. This is of decided advantage as this allows for easy and quick burning of the member 1 upon ignition of the charge 5 to facilitate the initial ignition of the member 1.

It is believed to be obvious that the opening 15 is also directed through the adjacent portions

of the jacket 3 and it is to be stated that while the member 1 is in descent, wind catches in the lower end of the opening 15 and thereby serves to cause the member to travel in an angular path and to maintain the same in such path of travel.

The member 1 at its center balance point and above the applied keeper plate 7 is provided in its wall with transversely aligned openings 16 which provide vents for the gases generated at the time of the initial firing of the bomb, thereby materially facilitating the ignition of the member 1. These gases, when first created, will push the pin 11 backward and also push the cap 10 off the member or sleeve 8, thus assuring the desired opening of the vents 16.

When the bomb is in storage, a suitable member 17, such as a wire strand on which the bombs are strung for releasing in large quantities, is inserted through the openings or vents 16 and inwardly of the pin 11 to provide means for holding the pin 11, or more particularly its tip 12, away from the percussion cap. Of course, this member 17 is withdrawn when the bomb is dropped and it is believed to be obvious that as the bomb hits its objective, the impact will be sufficient to cause the pin 11, or more particularly its point 12, to have contact with the percussion cap 12 to effect the initial ignition of the bomb. It is also particularly pointed out that the device as herein disclosed is substantially entirely of compressible material of a type particularly suited for the work desired.

In Figure 4 is diagrammatically illustrated a cluster of the members 1 and any such cluster can comprise as great a number of bombs as desired but preferably from 100 to 1,000.

The fire bomb as herein disclosed can be readily dropped from a bomber or kindred airplane but it is to be stated that the bombs are particularly advantageous for use in connection with the conveying means as embodied in my copending application Serial No. 431,871, filed February 21, 1942.

It is to be further stated that the bombs constructed in accordance with my invention are of comparatively light weight, thus allowing the same to be transported in great quantities, particularly by aircraft, but this sacrifice of long burning weight for quantity lightness does not in any way impair the efficiency of the bombs, particularly when used against fructus and flimsy objectives.

From the foregoing description it is thought to be obvious that a fire bomb constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

What I claim is:

1. A fire bomb comprising an elongated member of combustible material having a hollow portion, a starting charge within the member, means within the member for igniting said charge, and an opening disposed through one end portion of the member, said opening being directed on an incline lengthwise of the member, said opening providing means to cause the member, when dropped, to travel in a path angular to the perpendicular.

2. A fire bomb comprising an elongated member of combustible material having a hollow portion, a starting charge within the member, means within the member for igniting said charge, and an angularly disposed vane at one end portion of the member, the opposite end portion of the member having an opening disposed therethrough angular to the longitudinal axis of the member and in a direction lengthwise thereof, said vane and opening providing means to cause said member, when dropped, to travel in a path angular to the perpendicular.

3. A fire bomb comprising an elongated member of combustible material having a hollow portion, a starting charge within the member, means within the member for igniting said charge, and an opening disposed through one end portion of the member, said opening being directed on an incline lengthwise of the member, said opening providing means to cause the member, when dropped, to travel in a path angular to the perpendicular, said opening closely approaching the hollow portion of the member.

THOMAS P. DUNCAN, JR.