Jan. 21, 1947. J. H. HARMAN 2,414,464

TIMED ACTUATOR FOR AERIAL BOMBS

Filed April 6, 1943

Fig-1-

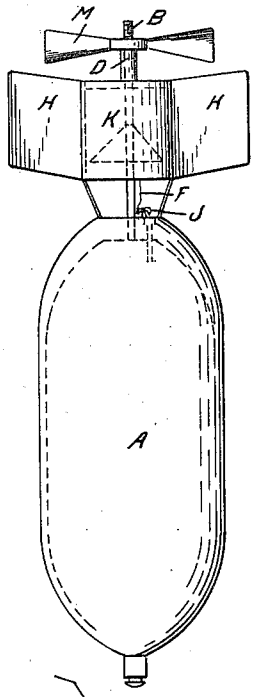
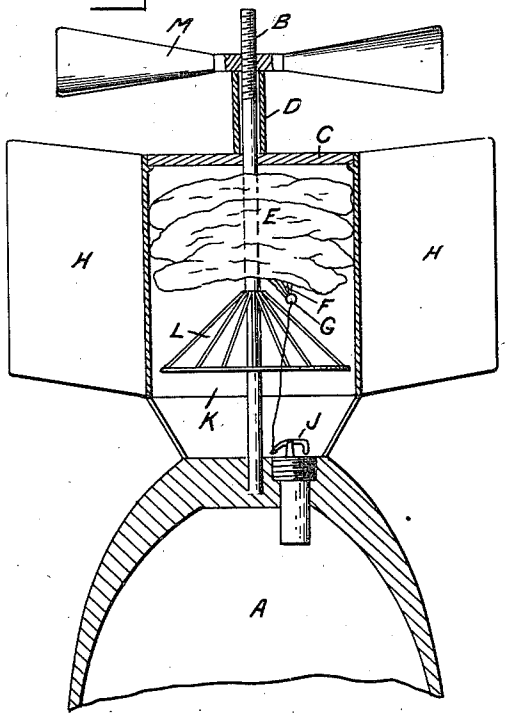


Fig-3-



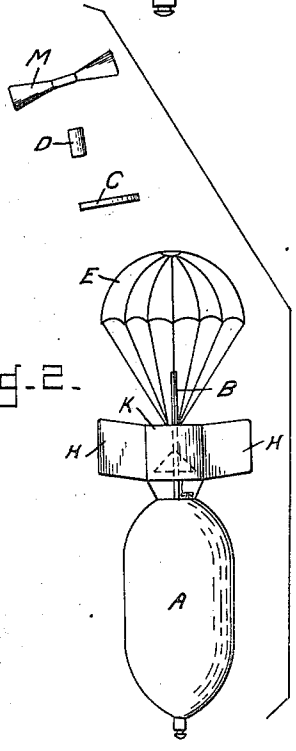
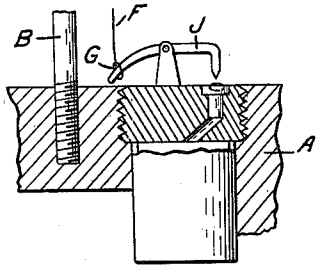


Fig-2-

Fig-4-



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TIMED ACTUATOR FOR AERIAL BOMBS

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Application April 6, 1943, Serial No. 481,965

3 Claims. (Cl. 102—86)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to means for the functioning of aerial bombs.

The primary object of the invention is to provide an arrangement simple in design and functioning action and effect positive action in operation of aerial bombs. Another object of the invention is to provide controlled means for the time functioning of aerial bombs.

The present practice in the bombing of industrial and military objects is to utilize bombs which function mainly by the operation of point detonating fuzes. While this mode of bomb functioning is desirable in most instances, it is often desirable in certain military operations to cause the bomb to burst in some instances 50 to 100 feet above the ground level. An example of such functioning would be in the use of a large shrapnel filled bomb to be used in the strafing of ground troops. Another suggested use of my device is to function a bomb, dropped from a high flying plane, amidst enemy aircraft flying below the bomb carrying plane. Another utilization of the device herein described is its application to aerial flare bombs, enabling the flare to function at a considerable distance from the plane dropping the flare. By this method of functioning no light glow will illuminate the plane making it an easy target for an anti-air craft barrage.

The invention can best be understood from the following description to be read in view of the attached sheets of drawing in which:

Figure 1 is an elevational view of the assembly incorporating the basic features of the invention;

Figure 2 shows the functioning action of the components making up the assembly;

Figure 3 is a view in detail of the assembly linked to a firing means;

Figure 4 is a sectional view of one form of firing means secured to a bomb.

Referring to the drawing, to the preferred type of aerial bomb A is secured a threaded rod B. Positioned circumferentially about the end of the bomb are supports on which is affixed a casing K. Two pairs of fins H are equi-distantly spaced about on the vertical and horizontal axis of the frame. Contained within the frame K is a parachute E held in position by a conical wire shade L, which serves to hold the parachute uniformly in place and permit an even wind pressure to be built up beneath the parachute. Parachute shroud lines F, joined together by a connecting

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ring G, are secured to a firing pin J forming part of the firing mechanism to set off the bomb. The firing pin J may be set for instantaneous or delayed action according to the type of fuze used in the bomb. Located within the frame is a closure disk C which serves to keep the parachute in closed position until ready for functioning.

Adjacent to closure dick C, and inserted on rod B, is a sleeve D which separates the lid from a vane M which is engaged on rod B.

The functioning of the device heretofore described, can be briefly set forth as follows: Upon release of the bomb from the bomb rack of the plane, the following automatic functioning occurs: Wind pressure will cause vane M to revolve on rod B until it reaches the end of the rod at which time the vane will drop off. It is evident that the span of time that it will take for vane M to reach the end of the rod will be determined by the length of the rod and pitch of the threads. At the time that the vane falls off, wind pressure against the parachute will force the parachute upwardly and throw off the sleeve D and closure disk C. The parachute will then snap open with such force exerted upon the shrouds that shroud lines F will be drawn taut and cause functioning of the firing pin J and resultant demolition of the bomb.

It will be noted that immediately upon the expulsion of the parachute, the interior of the casing, through which the wind can now freely pass, is converted into a stabilizing element cooperating with the fins H to form a stabilizer of approved construction, thus the casing in which the parachute is inclosed is utilized for the dual purpose of first serving as a housing for the parachute and thereafter becoming an important part of a stabilizer.

I claim:

1. A device adapted for the functioning of aerial bombs, comprising a casing open at its lower end and provided exteriorly with stabilizing fins, an expendible closure disk normally closing the upper end of the casing, circumferentially spaced supporting members connecting the casing with the tail end of the bomb and spacing the bomb and casing from each other so that air may freely pass into the lower end of the casing during the descent of the bomb, a rod threaded at its upper end and fixed to the bomb and extending centrally through the casing for a substantial distance beyond said closure disk, a parachute in the casing, means carried by the rod for supporting the parachute when in the cas-

ing, a vane rotatable on the rod and separable from the rod in the flight of the projectile, an expendible sleeve interposed between the vane and closure disk, and normally holding the disk closed, a firing mechanism carried by the tail of the bomb, and means connecting the parachute with said mechanism to actuate the same upon release of the parachute.

2. The invention of claim 1 characterized in that the means in the casing supporting the parachute comprises a cone-shaped body formed of spaced wires.

3. The invention of claim 1 characterized in that the expendible sleeve between the disk and bomb surrounds the rod.

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