R. MACHENBACH.

PROJECTILE FOR AIR VESSELS.

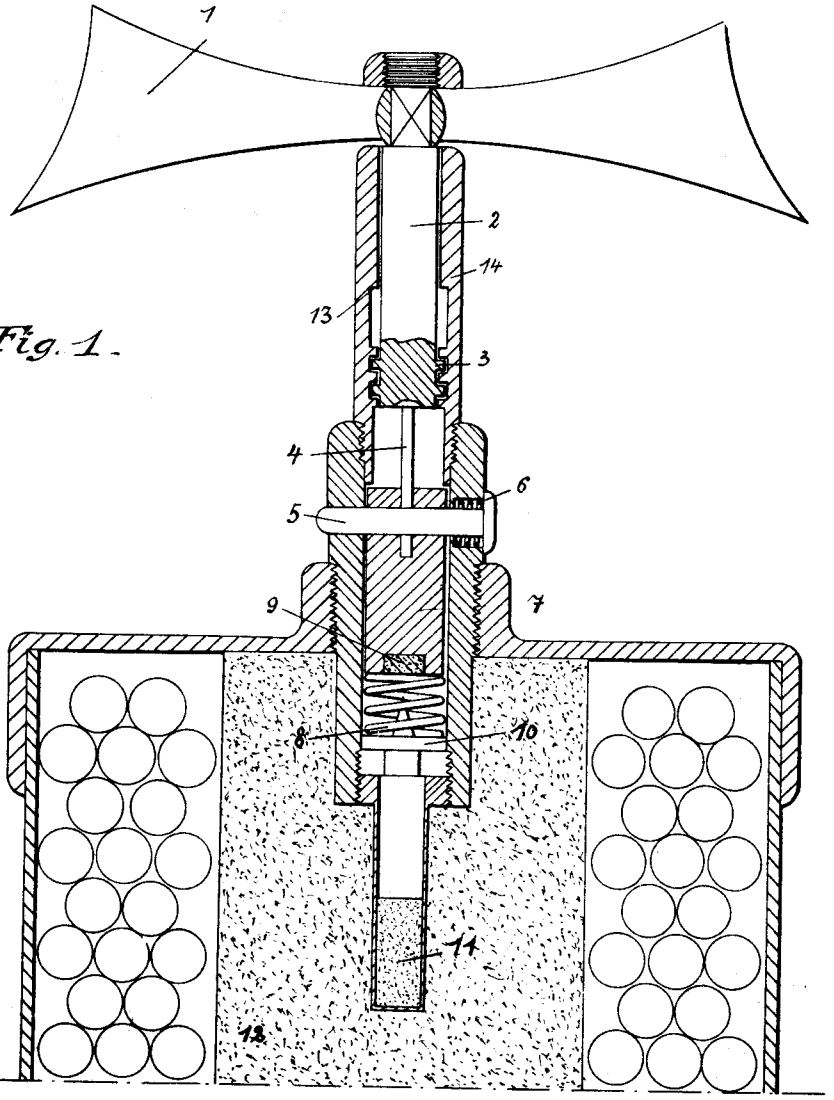
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1,142,827.

Patented June 15, 1915.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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J. W. Michael, Jr.

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Richard Machenbach—

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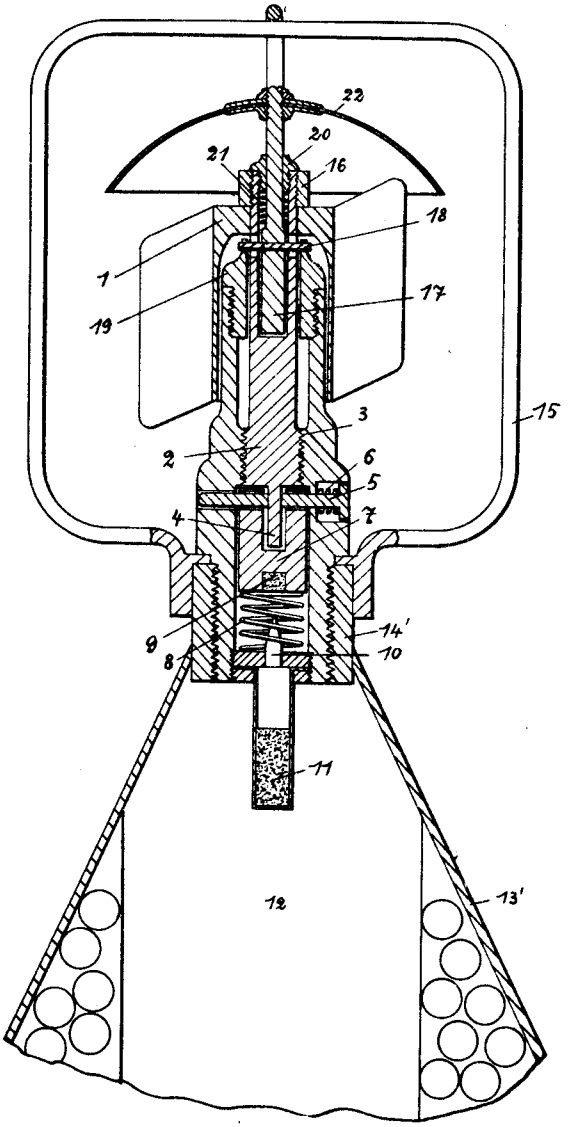
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2 SHEETS—SHEET 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

RICHARD MACHENBACH, OF SCHLEBUSCH, NEAR COLOGNE, GERMANY.

PROJECTILE FOR AIR VESSELS.

1,142,827. Specification of Letters Patent. Patented June 15, 1915.

Application filed April 16, 1913. Serial No. 761,575.

To all whom it may concern:

Be it known that I, RICHARD MACHENBACH, a subject of the German Emperor, and resident of Schlebusch, near Cologne-on-the-Rhine, Germany, have invented a certain new and useful Projectile for Air Vessels, of which the following is a specification.

My invention relates to projectiles, and has for its object to provide an improved projectile which is more particularly adapted for use with aerial craft.

A projectile constructed according to the present invention is shown in Figure 1 in longitudinal section. Fig. 2 is a simliar view of a modification.

Referring to Fig. 1 the projectile is provided at its rear end with a fan 1, which is set to rotate by the resistance offered by the air, when the projectile is in the act of falling. The fan 1 is attached to the shaft 2 which at its lower end is provided with a screw thread 3 and a thin prolongation or pin 4. This pin 4 passes through a transverse bore of the peg 5 and thus normally prevents the peg from being removed or pulled out. The peg at one end is surrounded by a spiral spring 6, which bears against the head of the peg and thus has the tendency to withdraw the peg. This tendency is resisted by the pin 4, until released. The peg at the same time holds the plunger 7 in position and thus prevents detonation of the projectile by an unintentional or untimely impact. As soon as the peg 5 is released from the hold of the pin 4 and pulled out, the plunger 7 will, as soon as the projectile hits the mark, drive the percussion cap or primer against the needle 10 overcoming the strain of the spring 8. The percussion cap will ignite and set the explosion chest 11 on fire, which itself will cause the detonation of the charge 12. According to the length and steepness of the thread 3 the fuse will be set at firing position at any desired distance from the spot where the projectile starts or is thrown. When the thread 3 has been screwed back to its complete length the end surface of the same will rest against the shoulder 13 of the tube 14, so that the fan 1 will not be completely withdrawn, but will keep its hold on the projectile and will continue to rotate. Thus the fan will keep on guiding the projectile in its further falling motion, in such manner that the central line of the projectile remains perpendicular. In some cases I may provide means whereby the projectile is rendered doubly secure, this result being attained by locking the rotatable fan against unintentional rotation, such an embodiment being illustrated at Fig. 2 of the appended drawing. In Fig. 2 the shell or casing 13 has the shape of a pear and is so designed, that the fuse is always at the rear end, and is bound to be set in operation, when an impact takes place.

The fuse is screwed into the cylindrical socket 14′ of the shell 13′ by the aid of the screw thread and on the same socket a guard 15 is attached for the fuse. This guard consists of two hoops and serves for protecting the parts of the fuse should the projectile happen to tumble. The hoops enable a convenient transport of the projectile.

The fuse itself consists as usual of the plunger 7, the needle 10, the explosion chest 11 and the safety spring 8. The safety mechanism for the plunger consists of the peg 5 acted upon by the spring 6 and held in position by a pin 4 projecting or attached to the rotatable spindle 2. To this spindle the fan 1 is firmly attached by the counter nut 16. The spindle is hollow at its upper end, and within this hollow a second plunger 17 is loosely guided having a transverse pin 18, which projects through a slot of the spindle 2 and engages a notch in the guiding screw 19. By these means rotation of the spindle 2 and the fan 1 will be prevented. The pressure spring 21 bearing against the screw 20 prevents any unintentional withdrawing of the pin 18 out of the notch. At its upper end the plunger 17 carries a hemispherical cap 22.

The device operates in the following manner: The projectile being thrown out, the cap 22 will be raised when the projectile has attained a certain speed, by the air catching underneath, and thus will also raise the pin 18. The consequence is, that the pin 18 slides out of the notch and releases the fan. The same will start to rotate and unscrews the spindle 2 from the screw thread 3, whereby the pin 4 is withdrawn from the peg 5. As soon as this is done the spring 6 pulls out the peg 5 and the striking plunger is free to act. According to the strength of the spring 21 and the number of threads 3, the release of the plungers, that is to say, the setting at firing po-

sition, may take place at any desired distance, say 100–250 m. from the air vessel, so that the driver or occupant of the air vessel is in no danger even if the landing is very violent. The device has the advantage, that any undesired rotation of the fan 1 and therefore an untimely tripping of the striking plunger 7 by the release and withdrawal of the peg 5 is effectively prevented. The means for locking the fan 1 on the fixed part 19 may of course be otherwise constructed as far as it is adapted to be released by the cap.

I claim:

1. Projectile for air vessels, comprising a casing, a fan, a fuse comprising a plunger, a peg for holding the plunger in position, a spring bearing on the peg and tending to throw it out, a spindle carrying the fan and provided with screw thread, a pin at the end of the spindle engaging the peg and adapted to release the peg when the fan is rotated and unscrews the spindle.

2. Projectile for air vessels comprising a casing, a fuse, a fan adapted to set the fuse at firing position, a cap adapted to be raised by the resistance of the air, means to lock the fan against rotation and adapted to be released when the cap is raised, the fan being allowed to freely rotate when said locking means are released.

3. Projectile for air vessels, comprising a casing, a fuse, a rotatable fan adapted to set the fuse at firing position and to guide the projectile in vertical direction when falling, a cap adapted to be raised by the resistance of the air, means to lock the fan against rotation and adapted to be released when the cap is raised, said fan being allowed to freely rotate when the locking means are released.

4. Projectile for air vessels, comprising a casing, a fuse, a rotatable fan adapted to set the fuse at firing position and to guide the projectile in vertical direction when falling, a cap adapted to be raised by the resistance of the air, a locking pin normally adapted to lock the fan and adapted to be released when the cap is raised to allow the fan to freely rotate when the projectile has fallen for a certain distance.

5. Projectile for air vessels, comprising a casing, a fuse, a fan adapted to set the fuse at firing position, a spindle carrying the fan, a cap constructed to be raised by the air catching underneath when the projectile is falling and a second spindle carrying the cap and rotatably journaled within a longitudinal bore of the first named spindle, a spring tending to hold the spindle of the cap in lowest position with regard to the first named spindle, a pin attached to the spindle of the cap and projecting out through a slot in the first named spindle, a notch in a fixed part of the projectile engaged by the said pin to hold the fan against rotation until the cap is raised in act of the projectile falling.

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Witnesses:

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