A. BETTICA.

BOMB FOR AEROPLANES.

APPLICATION FILED JAN. 25, 1919.

1,367,938. Patented Feb. 8, 1921.

Fig. 1

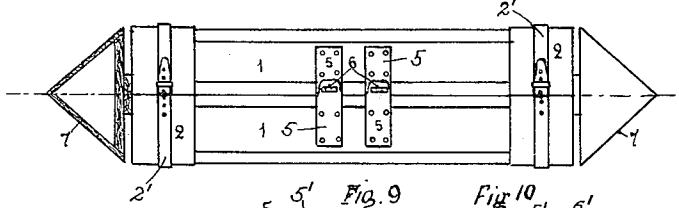


Fig. 2

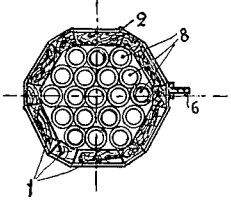


Fig. 9

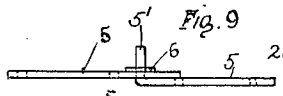


Fig. 10

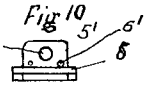


Fig. 11

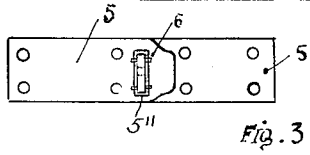


Fig. 3a

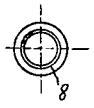


Fig. 3

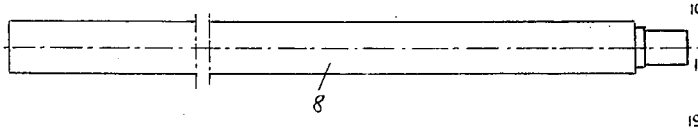


Fig. 6

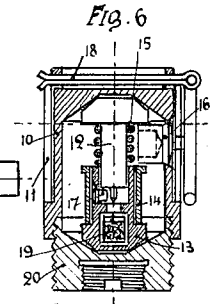


Fig. 7

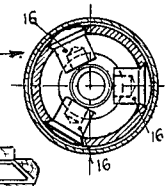


Fig. 8

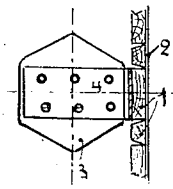


Fig. 4

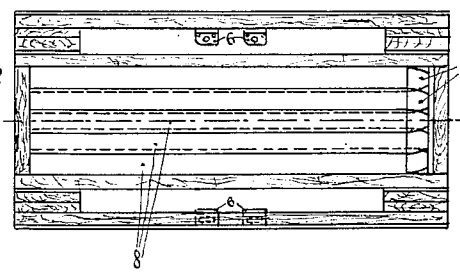
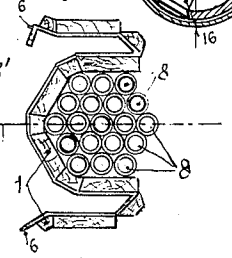


Fig. 5



Inventor
Alberto Bettica,
By Henry Orth & Co
Atty

UNITED STATES PATENT OFFICE.

ALBERTO BETTICA, OF SETTIMO TORINESE, NEAR TURIN, ITALY.

BOMB FOR AEROPLANES.

1,367,938. Specification of Letters Patent. Patented Feb. 8, 1921.

Application filed January 25, 1919. Serial No. 273,109.

To all whom it may concern:

Be it known that I, ALBERTO BETTICA, residing at Settimo Torinese, near Turin, in the Kingdom of Italy, major in the Italian Army, have invented certain new and useful Improvements in Bombs for Aeroplanes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The object of the present invention is to provide a bomb that is particularly adapted for aerial warfare, and when thrown from an aeroplane the possibilities of hitting a like moving plane are greatly increased owing to the fact that a plurality of explosive tubes are dispersed over a large area.

The invention consists in constructing a shell or casing of a plurality of rods or staves and in so connecting said staves together that they form a wrapper suitable for binding a plurality of bursting tubes together, and in providing a locking means for the shell or wrapper that will hold during transportation and will automatically separate and allow the shell to open when dropped.

In the accompanying drawing—

Figure 1 is a plan view of a preferred form of bomb embodying my invention.

Fig. 2 is a cross section thereof.

Fig. 3 is a side view of one of the bursting tubes of the bomb having a universal fuse,

Fig. 3ª is an end view of a tube.

Fig. 4 is a plan view of the bomb showing the shell thereof half open and the tubes provided with ebonite or like plugs used in transportation.

Fig. 5 is a cross section of Fig. 4.

Fig. 6 is an axial section, and

Fig. 7 is a cross section of a universal fuse.

Fig. 8 is an end view of Fig. 4.

Figs. 9, 10 and 11 are respectively, an elevation, and end view, and a plan view, of the means for fastening the bomb to the aeroplane.

The bomb consists of a shell or casing made up of a plurality of wide and narrow wooden rods or staves 1 flexibly connected together by bands 2 of suitable textile material. The ends of the shell are closed by wooden head pieces 3 preferably hexagonal in form which is the preferred cross sectional form of the shell as shown in Figs. 2 and 5, said heads being connected to two of the side staves by means of metal plates 4, as shown in Fig. 8.

The bursting tubes hereinafter described are packed into the shell through one side thereof, an opening being formed therein by folding back two or more of the staves as shown in Fig. 5. When the tubes have been packed into the shell, as shown in said figure, the opening is closed by the staves, as shown in Fig. 2, which are locked or fastened together.

The locking means shown consists of two metal plates 5 secured to adjacent staves and arranged to overlap when the staves are in closed position. One of the plates 5 has a tongue 5′ on the end thereof bent at right angles thereto, said tongue being adapted to project through a slot 5″ formed in the other plate. Split pins 6 projecting through small holes 6′ in the tongue just above the overlapping plate 5 serve to lock the two plates together during transportation. The shell is further reinforced during transportation by leather belts 2′ strapped around each end of the shell.

Conical end pieces 7 adapted to decrease the resistance of the air on the bomb during flight, are mounted on the heads 4 of the casing as shown in Fig. 1.

The bursting tubes 8 (Fig. 3) are of any suitable construction or make and preferably consist of a length of iron pipe closed at one end by a paraffined wooden plug and containing a bursting charge of high explosive.

During transportation and storage, an ebonite or like plug 8′ is screwed into the head of the tube and is replaced when the bombs are to be used by a universal fuse (Figs. 6 and 7) which will explode in any position. Said fuse consists of a hollow cylindrical body 10 having an external ring 11 and containing a firing pin 12, a cap holder 13, arranged near one end of the pin and surrounded by a sleeve 14. A coiled spring 15 is interposed between the head of the pin 12 and cap holder 13, containing a cap 19, and a large pawl 16 normally rests between one end of the sleeve 14 and the head of the pin 12, while a small pawl 17 within the sleeve 14 projects between the

end of the pin and the cap holder. A safety pin 18 normally holds the above named parts inoperative, and the fuse is connected to the bursting tube 8 by a screw threaded plug 20 which is screwed onto one end of the cylindrical body 10.

During transportation and while the bombs are in storage, the tubes are closed by the ebonite plugs. Before distribution of the bombs for use, the plugs are removed from the tubes and replaced by the fuses, the safety pin 18 removed from the fuses, and the bombs packed into the half-closed shells shown in Fig. 5. Any displacement of the external ring 11 of the fuse is prevented by the head of the shell, said head being preferably coated with paraffined felt for preventing any damage to the fuses, in case of a sudden landing of the aeroplane.

When the bomb is connected to the launching device of the aeroplane, the belts 2′ are removed from the shell and the safety pins 6 are removed from the lock plates 5. The tongue 5′ is provided with a large hole 21 through which a bar or hook (not shown) on the launching device projects and holds the plates 5 locked until the bomb is released.

When the universal fuses shown in Fig. 6 are screwed on to the explosive tubes and the bomb is ready to be dropped all the safety pins 18 are removed from the fuses as well as the belts 2′ that fasten the shell 1, and the safety pins 6. During the fall of the bomb, the shell 1 will open and the tubes are free to fall and are turned upside down when falling. In order to make the disengagement of the pawls 16 and 17 easier, these latter are provided with hollow stems, so that the center of gravity is near the head. From this instant the tube may explode whatever the direction of the stroke may be. In fact if the stroke is received axially, the cap holder 13 and the pin 12 will move nearer together, so that the pin will strike against the cap 19. If the shock is received in an oblique direction or in a direction perpendicular to the fuse axis, the cap holder 13 and the pin 12 will get nearer as their heads will be compelled to slip on the conical bottoms of the body of the fuse 10 and of the plug of the screw 20.

Therefore when falling the explosive tube will in any case explode as soon as it strikes with a strength sufficient to overcome the resistance of the spring 15.

I claim:

1. A bomb comprising a plurality of explosive tubes, a casing or shell consisting of a plurality of wide and narrow rigid members, textile strips connecting said members to form a wrapping for binding the tubes together, heads connected to the ends of the rigid members, and means for locking the wrapper in binding position.

2. A bomb comprising a plurality of explosive tubes, a casing or shell for binding the tubes together consisting of a plurality of wooden staves, textile strips connecting the staves together, head pieces connected to the ends of the staves, locking plates for fastening the staves around the tubes, and removable pins for locking the plates together.

3. A bomb comprising a plurality of explosive tubes, a casing or shell for binding a plurality of bursting tubes together, consisting of a plurality of rigid members flexibly connected together and surrounding the tubes, plates connected to adjacent staves and having a tongue and slot connection, and pins projecting through the tongue to temporarily connect the plates together.

In testimony that I claim the foregoing as my invention I have signed my name.

ALBERTO BETTICA.