

April 23, 1946.

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2,398,871

ROCKET FIRING TUBE

Filed April 30, 1943

2 Sheets-Sheet 1

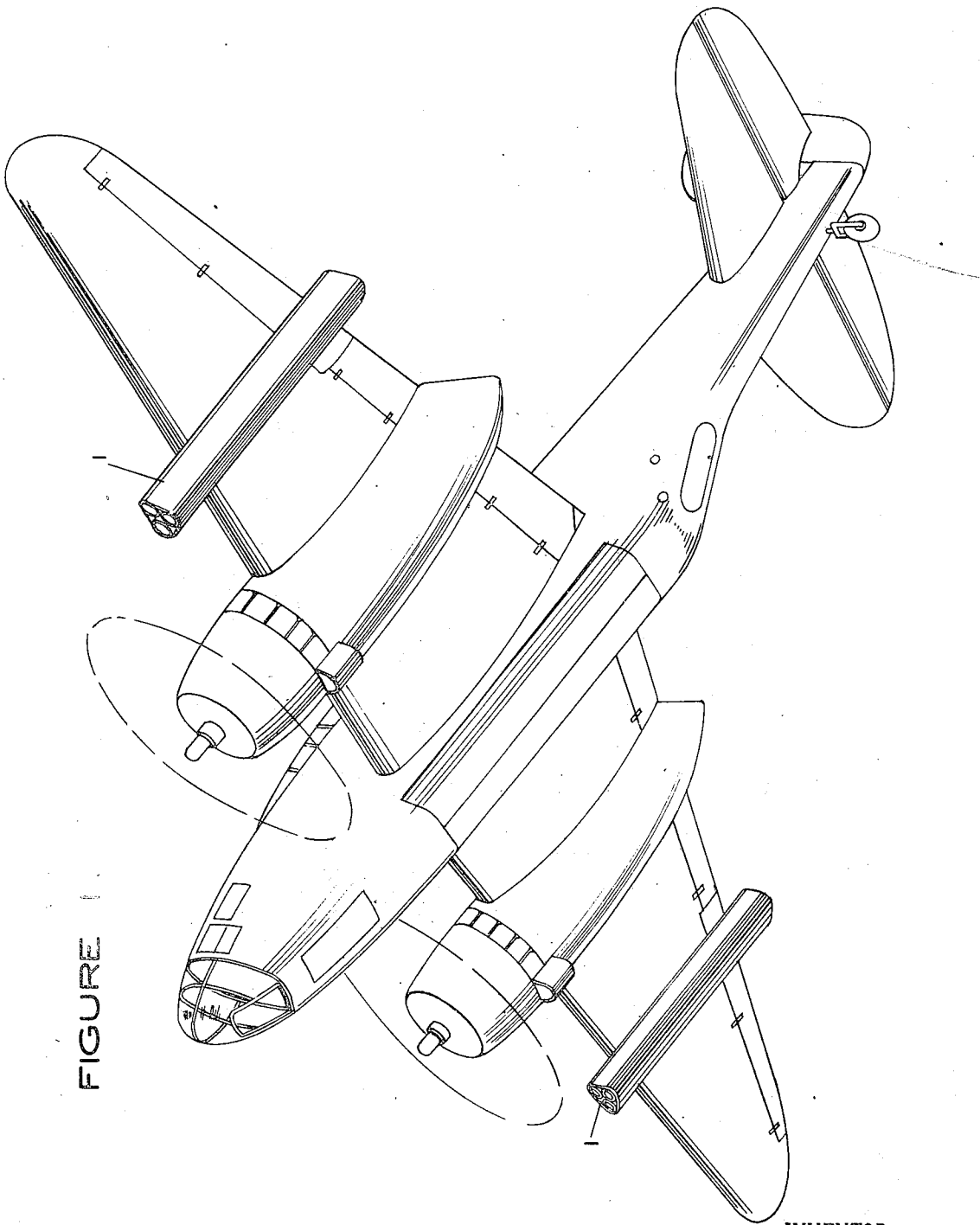


FIGURE 1

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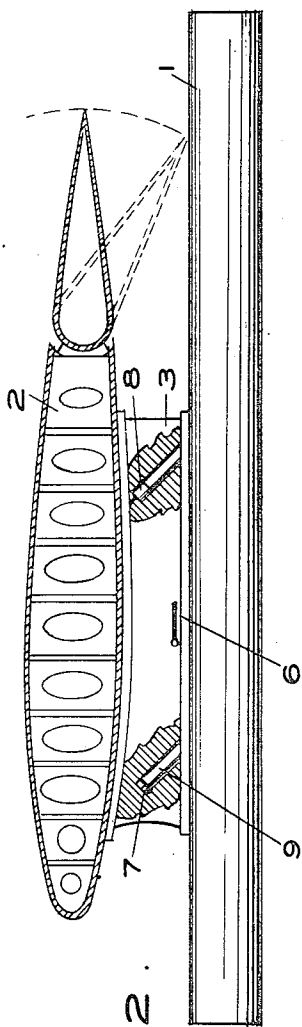


FIGURE 2.

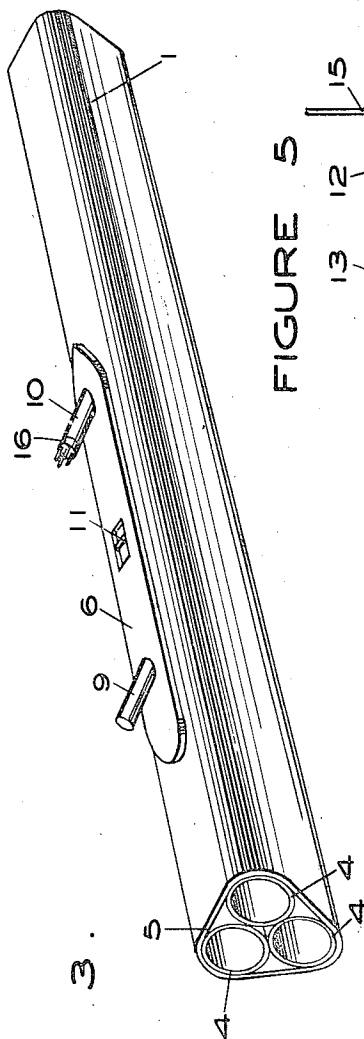


FIGURE 3.

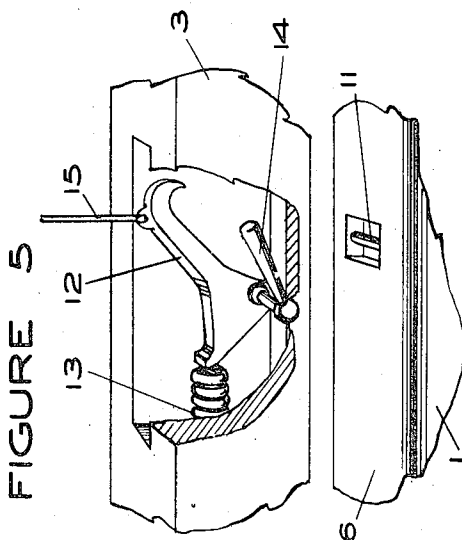


FIGURE 4.

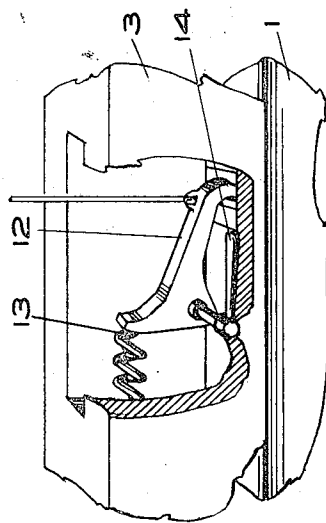


FIGURE 5.

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ROCKET FIRING TUBE

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tin Company, Middle River, Md., a corporation
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Application April 30, 1943, Serial No. 485,124

3 Claims. (Cl. 89-1.7)

This invention relates to the adaption of novel offensive armament to aircraft.

In the current development of offensive armament, a rocket-propelled projectile has been designed that has a devastating effect on a target at about 1000 yard range. The projectile itself forms no part of this invention.

The present invention has for its object the provision of a cluster of plywood rocket-firing tubes adapted to be attached to aircraft, particularly the under side of an airplane wing. The tube cluster is so attached that after the rockets have been fired from the tubes, the tube cluster may be jettisoned downwardly and rearwardly from its mount to fall clear of the wing.

Another object of the invention is the provision of structure for readily attaching the tube cluster to the mount that is attached to the under side of the wing of the airplane.

Further and other objects will become apparent from the description of the accompanying drawings which form a part of this disclosure and in which like numerals refer to like parts.

In the drawings:

Figure 1 shows the tubes secured to the under side of an airplane wing.

Figure 2 is a sectional view through the wing showing the tubes and mount in elevation.

Figure 3 is a perspective view of a tube cluster.

Figures 4 and 5 are perspective views of the latching device.

The medium bomber shown in Figure 1, has a cluster of tubes 1 mounted under each wing in such a position that the projectiles from the tubes pass well outside the propeller circle.

For projectiles of approximately 4 inches in diameter and 24 inches long, the tube length may range from 8 to 13 feet long, the latter being the optimum length.

The tube cluster, shown in Figure 2, is attached to the wing 2 by means of a mounting structure 3. The mounting structure consists of a block of streamlined planform, the upper surface of which is adapted to conform with the contour of the under side of the wing for mounting thereon. This mounting block may be of wood or plastic material. The mounting block contains two holes 7 and 8 directed downwardly and rearwardly of the wing and also a latching mechanism.

The tube cluster shown in Figure 3, consists of three plywood tubes 4 bonded together into a unitary structure by wrapping 5. To the top of the wrapped tube cluster is secured a mounting plate 6 which has two pins 9 and 10 inclined

to fit into the holes in mounting member 3. The rear pin has on the end thereof, a multi-pronged plug adapted to cooperate with a socket in hole 8 thus providing the electrical circuits for selectively firing the tubes. Pin 11 is secured in mounting plate 6.

Figures 4 and 5 show the catch mounted in member 3 that engages pin 11 of the tube cluster. Hook member 12 normally in the position shown in Figure 4, is held in this position by spring 13. Handle 14 extends on the outside of member 3 to afford a means for holding hook 12 in the position shown in Figure 5 until the tube cluster is in place. Cable 15 affords a release of the catch actuated from within the fuselage whereby the tube cluster may be released from the mount.

The tubes may be put in place on the bracket, for bore sighting and any adjustments made in the mount for alignment.

The tubes are normally loaded with the projectiles and the firing circuits connected before being attached to the airplane although they may be loaded in place. The loaded tube cluster is put in place by sliding the posts 9 and 10 into sockets 7 and 8, the firing circuit being completed through plug 16. A safety switch is provided in the firing circuit to prevent inadvertent firing.

The projectiles are fired by the electric circuits from some remote point. When it is desired to release the cluster, the cable 15 unlatches the hook 12 from pin 11 and the tube cluster moves downwardly and rearwardly of the wing. The tubes are open at both ends due to the fact that the projectiles are rocket-propelled and the air pressure in the tubes assists the downward, rearward motion of the tubes upon release.

As set forth above, the tubes merely form a guide to direct the projectiles in a predetermined direction. Since they experience substantially unbalanced force in the tube, plywood is sufficient for the purpose and has the added advantage of being an expendable material. The wrapping of three in a bundle, forming a unitary structure, increases the strength and rigidity of the cluster so that after the installation has been aligned by bore sighting, the aim will not be disturbed in normal use. It is important to have the muzzle ends of the tubes terminate in the same plane so that the projectile will not experience any unbalanced side thrust as it leaves the ends of the tube.

It is to be understood that certain changes, alterations, modifications and substitutions can be made without departing from the spirit and scope of the appended claims.

We claim as our invention:

1. In combination an airplane wing, a rocket-firing tube cluster extending longitudinally of the airplane under said wing, a supporting bracket for said tube cluster to releasably secure said cluster on the wing, said supporting bracket holding the tube cluster in spaced relation to the under side of said wing, guide means for mounting said tube cluster on said supporting bracket, said guide means so arranged that upon release, said tube cluster will be projected downwardly and rearwardly of said wing.

2. In combination an airplane wing, a rocket-firing tube cluster extending longitudinally of the airplane under said wing, a streamlined supporting bracket narrow relative to said tube cluster to hold said tube cluster in spaced relation to the under side of said wing, guide means for mounting said tube cluster on said supporting bracket, said guide means arranged so that upon release, said tube cluster will be projected downwardly and rearwardly of said wing.

3. In combination an airplane wing having control surfaces along the trailing edge, a rocket-firing tube cluster extending longitudinally of the airplane under said wing, a supporting bracket therefor to releasably secure said tube cluster under said wing, said supporting bracket holding the tube cluster so spaced relative to the wing that the tubes will not interfere with the flow of air under the wings nor the operation of said control surfaces, said brackets also maintaining said tube cluster aligned with the flight attitude of the airplane wing, guide means for mounting said tube cluster on said supporting means, means to releasably secure said tube cluster on said support, said guide means arranged so that, upon release, said tube cluster will be projected downwardly and rearwardly of said wing.

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