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**3,438,304**

DEVICE FOR MOUNTING A GUN BENEATH THE WING OF AN AIRPLANE

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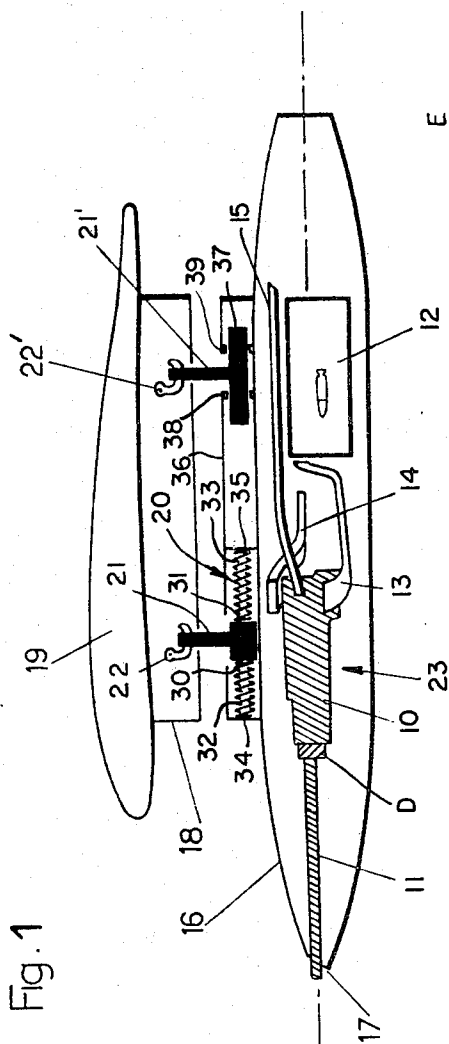
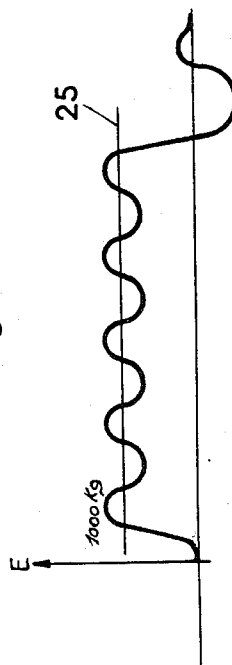


Fig. 2.



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## DEVICE FOR MOUNTING A GUN BENEATH THE WING OF AN AIRPLANE

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2 Claims

### ABSTRACT OF THE DISCLOSURE

A weapons system comprising a gun secured in a container which is slung beneath a pylon of a wing of an airplane via a shock absorber which damps the transmission of forces from the container to the airplane in a direction parallel to the longitudinal axis of the container upon firing of the gun.

The invention relates to a device for mounting a gun beneath the wing of an airplane.

It is an object of the invention to provide a device which enables an airplane to be equipped rapidly with a gun, for the performance of a mission, and which also enables the weapon to be removed rapidly when the mission is ended.

It is also an object of the invention to provide a device which protects the airplane from the considerable stresses which are developed when the weapon is fired.

It is a particular object of the invention to provide such a mounting device whose effectiveness permits the use of relatively high calibre and rapid-firing guns, while avoiding subjecting the airplane to excessive stresses arising from the recoil effects produced when the gun is fired.

According to the invention, the casing or container in the interior of which the gun is placed, is mounted on the airplane by means of a damping system.

The invention will be well understood from the following description, given by way of example. In this description, reference is made to the accompanying drawing, wherein:

FIGURE 1 is a schematic elevation view of a mounting device according to the invention; and

FIGURE 2 is a graph showing the transmitted stress to the airplane as plotted against time.

The gun 10, with its barrel 11, the cartridge feeding magazine 12, the feed channels for cartridges 13, for ejection of cartridge-links 14 and of cartridge cases 15, are housed and fixed rigidly in the interior of a casing or container 16. The barrel 11 of the gun projects from the front orifice 17 of the container.

In accordance with the invention, it is the container itself, enclosing the weapon and its accessories, which is fixed to the airplane, advantageously to the lower end of a pylon or mast 18, integral with wing 19, by means of a damping system 20, which may be of the spring or other type. The damping system 20 comprises means 21, 21' for hooking the container to the pylon 18. The means 21 constitute abutment faces 30 and 31 for spring means 32 and 33 which engage walls 34 and 35 of the casing

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36 integral with the container. The means 21' comprises an elongated body 37 cooperating with ribs 38 and 39 for guiding sliding movement of the unit constituted by the container 16 and the casing 36. The pylon comprises a hook release system 22, 22' enabling separation of the container from the wing.

In the course of firing, the damping action of the system 20 itself is exerted upon a mass which includes not only the gun, but also the container, the ammunition to be fired, the cartridge cases, and which is considerably greater than the mass of the gun itself. For example, for a gun of 80 kg., the mass of the container, including the weapon, is of the order of 300 kg.

The effectiveness of the damping device is then high. There is shown, by way of example, in the diagram of FIGURE 2, the value of the stresses which are transmitted to the pylon 18 in the course of firing a gun in which the recoil stress is approximately four tons. This diagram is an undulating line of which not only the average value, shown by the line 25, is relatively small, of the order of one ton, but wherein, above all, the amplitude of the undulation is small, of the order of 200 kg., thus avoiding the effect on the airplane of considerable cyclic stresses to which the structures or fastening members are particularly sensitive.

This effective damping device does not interfere with the good operation of the weapon: the damping stiffness for the weapon itself obtained by means interposed between the body 23 and the barrel 11 schematically shown at D remains that which permits good operation at the firing rate for which it is designed.

What is claimed is:

1. A gun system for attachment beneath an aircraft wing having suspension means, said system comprising a container, a repeater gun inside the container and secured thereto, ammunition supply and ejection means for said gun inside said container, a casing secured to said container, a suspended device connected to the wing suspension means and penetrating into the casing, said suspended device having opposite transverse faces, and spring means interposed between the casing and said transverse faces.

2. A system according to claim 1 comprising a second suspended device attached to the wing suspension means and penetrating into the casing and comprising an elongated body positioned in said casing, and ribs on the casing cooperating with the said body for guiding the casing and thereby the container for longitudinal movement of the container relative to the wing.

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