Feb. 7, 1967 P. LAUREYS 3,302,522

WEAPONS FOR FIRING SELF-PROPELLED MISSILES

Filed Oct. 12, 1964

4 Sheets-Sheet 1

FIG. 1

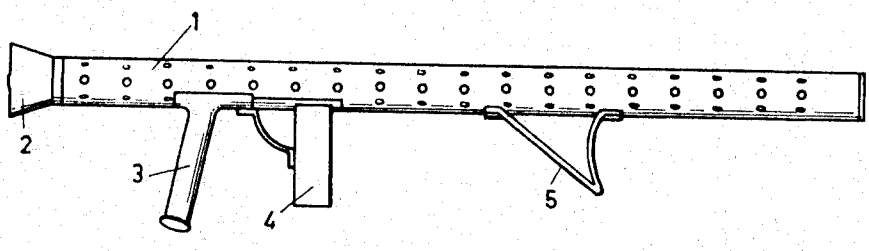


FIG. 2

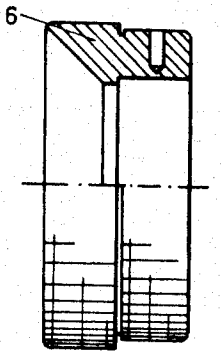


FIG. 3

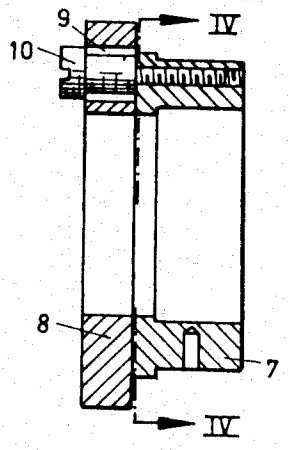
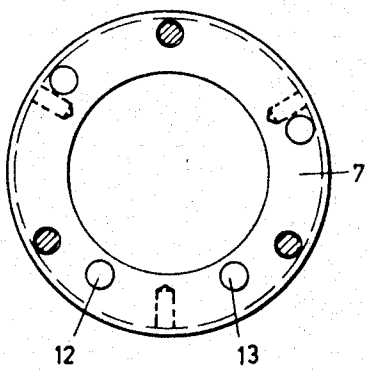


FIG. 4



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FIG. 5

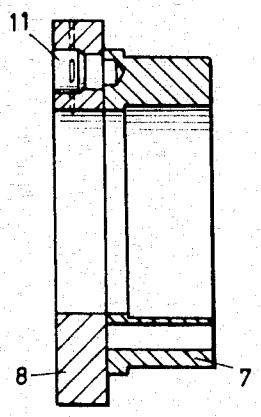


FIG. 6

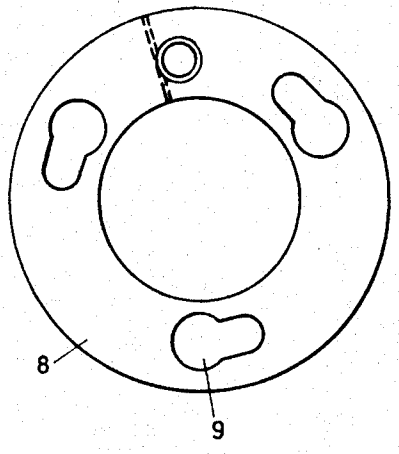
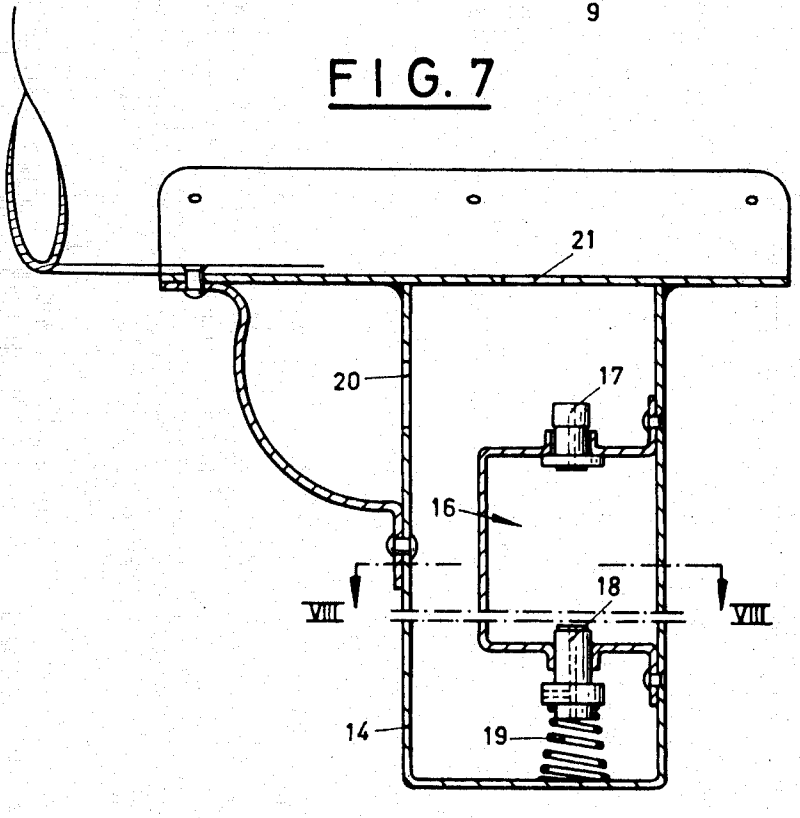


FIG. 7



WEAPONS FOR FIRING SELF-PROPELLED MISSILES

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FIG. 8

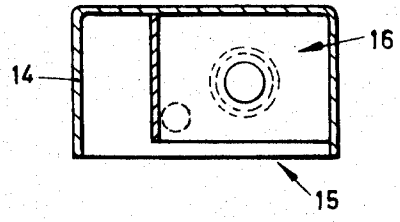
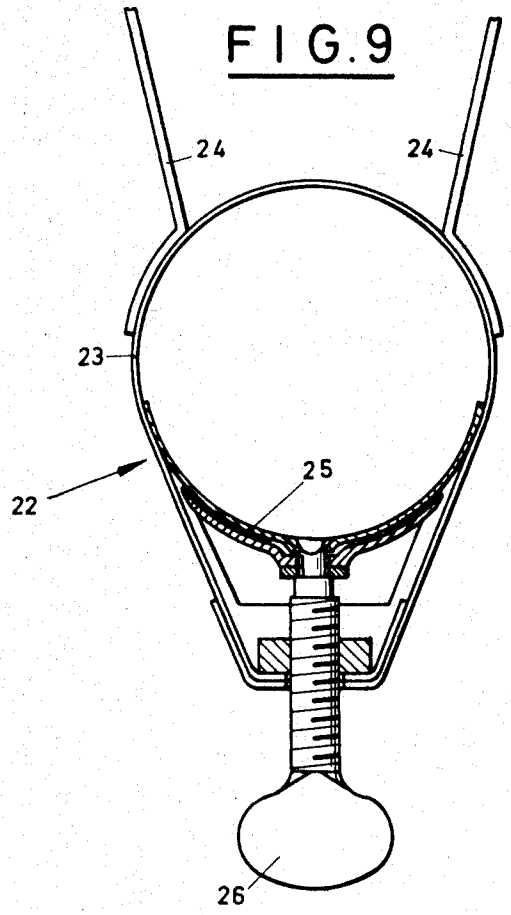


FIG. 9



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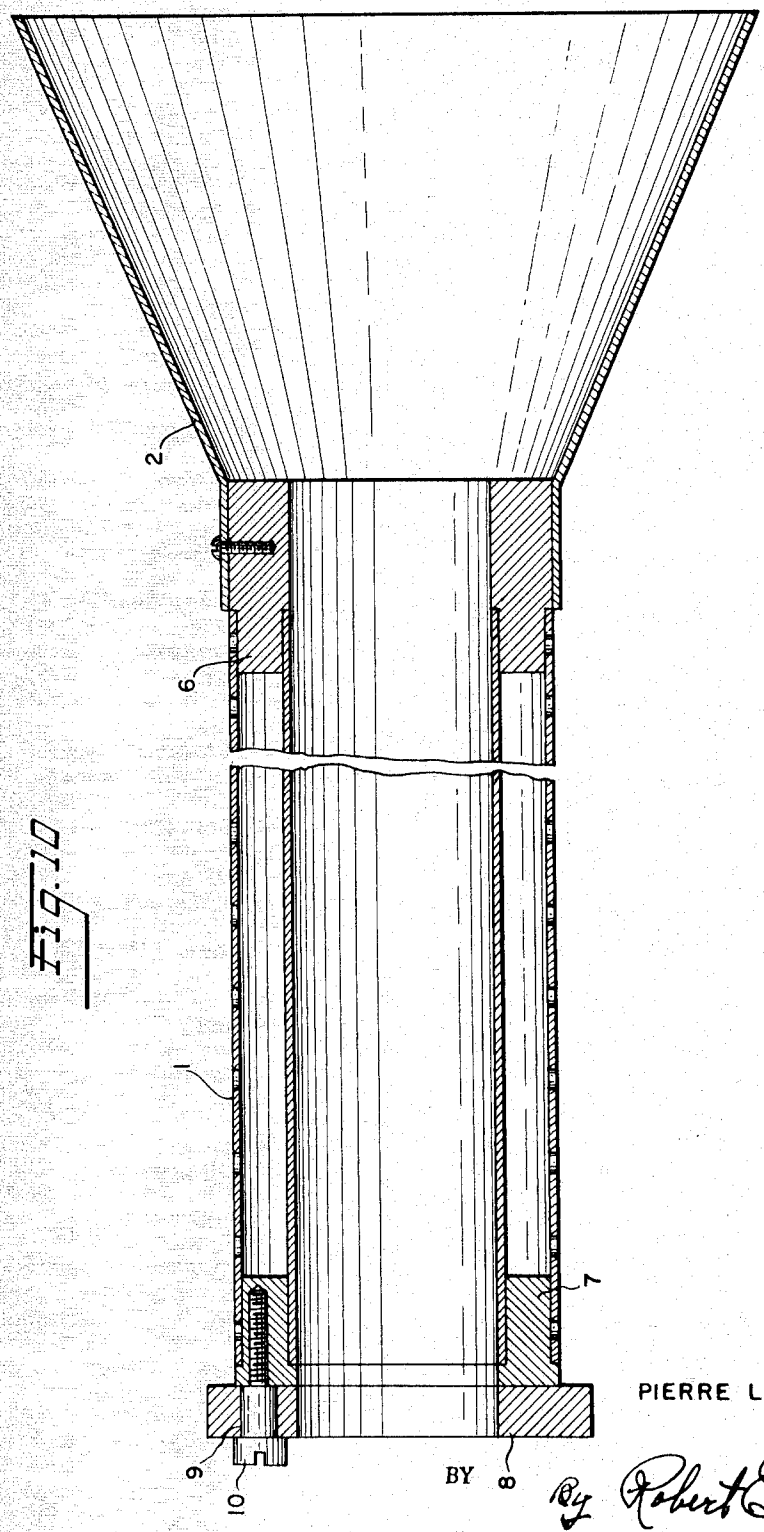


Fig. 10

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WEAPONS FOR FIRING SELF-PROPELLED MISSILES

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3 Claims. (Cl. 89—1.807)

Several weapons are already in existence for firing self-propelled missiles, generally comprising a tube open at its two extremities, holding means, means for aiming the weapon and an arrangement for firing the missiles.

The known arrangements for mechanical firing present however the disadvantage of requiring, apart from a retractable percussion mechanism, a bolt adapted to hold back the missile in a predetermined position in relation to the firing pin. The numerous parts composing these arrangements necessitate a constant maintenance and increase the weight of the weapon.

Other arrangements of the firing mechanism are based on the principle of an electric priming of the missile by means of contact of insulated terminals on the missile and on the weapon itself. The bringing into contact of the respective terminals also necessitates a precise positioning of the missile in the tube as well as means for retracting the contact parts and for blocking with the introduction and the departure of the missile.

The maintenance of such arrangements is very delicate and the weight of the weapon is considerable.

The present invention consists in a weapon for firing self-propelled missiles, comprising a tubular support, open at its two extremities and provided with an outer protective sleeve, holding means, means for aiming the weapon and means for electrically firing the self-propelled missile, in which the electrical firing means are constituted by a firing butt comprising a dry cell, an interruptor and by an electrical circuit connecting, through the intermediary of the dry cell and the interruptor, contact points for firing the missile, at the rear of the weapon.

The invention will be further described, by way of example, with reference to the accompanying drawings showing a preferred embodiment of the invention, in which:

FIG. 1 is a side elevation of the weapon, according to the invention;

FIG. 2 is a detailed view, partly in section of a rear separator;

The FIGS. 3 and 5 show axial cross-sections of a front separator provided with a safety ring;

FIG. 4 is a cross-section taken along the line IV—IV in FIG. 3;

FIG. 6 is a plan view of FIG. 5;

FIG. 7 is a cross-section taken through the firing butt of the weapon;

FIG. 8 is a cross-section taken along the line VIII—VIII in FIG. 7, and

FIG. 9 is a cross-section of the weapon securing collar.

FIG. 10 is an axial view of the weapon of the invention.

The weapon shown in FIG. 1 comprises an outer protecting sleeve composed of a tube **1**, inside which is arranged a tubular support, not shown in the drawing, and a conical flash-trap **2** arranged at its extremity. The holding means and the means for aiming comprise a safety grip **3**, a firing butt **4**, a rest **5**, a securing collar, illustrated in FIG. 9, and sighting organs not shown in the drawing.

The tubular support, not shown in the drawing, is arranged in the sleeve **1** between a rear separator **6** (FIG. 2) and a front separator (FIGS. 3 and 5) in the inner bore of the latter. The rear separator **6** has fixed, on the one hand, in its inner bore the tubular support and, on the other hand, on its outer surface the protective sleeve

comprising the perforated tube **1** and the flash-trap **2**.

The front separator, as well as the rear separator, are formed by a cylindrical bush **7** (FIG. 3), in the inner bore of which is arranged one of the extremities of the tubular support. On the front face, that is, in the forward direction, of this bush is securely fixed a safety ring **8** mounted by means of three key shaped openings **9** on three screws having cylindrical heads **10** blocked on the bush in such a way that, when introducing the ring by its openings **9** on the cylindrical heads **10** of screws, it is sufficient to give it a slight twist for securing it on the bush.

The ring is formed with a recess **11** in which is fixed a spring-loaded guide, not shown in the drawing, for positioning it with respect to the bush. The safety ring has for its purpose to keep the forepart of the missile at the place of the contacts of the electrical firing arrangement when introduced into the weapon.

This safety ring is radially expansible.

In FIG. 4 are shown, in a cross-section taken along the line IV—IV in FIG. 3, openings **12** and **13** for the passage of the electrical conductors leading from, and between the tubular support and the protective sleeve, the box of the firing butt.

The box of the firing butt is illustrated in FIGS. 7 and 8, and comprises a rectangular box **14**, having an open face **15**, which can be closed, and which contains a recess **16** for receiving a dry cell, not shown in the drawing. This dry cell rests between a fixed terminal **17** and a spring loaded terminal **18** urged by a spring **19**. The electrical conductors pass through openings in these insulating terminals. One of these conductors, not shown in the drawing, is connected to an interruptor comprising a silver sphere, also not shown in the drawing, through the opening **20** arranged in the box **14**. When leaving the interruptor, it is connected to the other conductor coming from the other terminal of the dry cell and is conjointly extended through the opening **21** arranged in the upper surface of the box **14** and in the protective sleeve, inside an aluminium tube, towards the front part of the weapon. The missile is connected to the electrical firing circuit by means of contact holes of insulated silver, insulated by a substance of vulcanised rubber, the electrical conductors engaging in the contact holes.

A securing collar **22** (FIG. 9) is adaptable to the diameter of the weapon and comprises a sleeve **23** on which are mounted supports **24**. The upper cylindrical part of the sleeve **23** is closed by a removable inner half-cylinder **25**. This cylinder can slide radially under the influence of a securing screw **26** and blocks a tubular part, not shown in the drawing.

The weapon described above is very easy to assemble and is of a reduced weight because the number of the component parts is limited and they are, for the greater part, made from aluminium or aluminium alloy the securing collar being made of steel. The use of the weapon and its maintenance are easy. The introduction through the front part of a self-propelled missile and the placing of the conductors are sufficient for its preparation. A 15-volt dry cell ensures the electrical firing.

The weapon according to the invention, combines three functions simultaneously, i.e. as a recoil free cannon, it reaches great distances, as a mortar it is used at an angle of 45° and lastly, as a bazooka it is used under the arm or on solid support and serves as an anti-tank weapon.

What I claim is:

1. A weapon for firing self-propelled missiles comprising:

(A) a tubular support open at both extremities;

(B) an outer protective sleeve for said support consisting of a perforated tube; said sleeve and said tube being secured by means of cylindrical front and back

separator bushes; said front separator bush having on the front face thereof a radially expansible safety ring for maintaining a missile in place; said back separator bush having a conical flash trap secured thereto;

(C) an electrical firing circuit comprising a dry cell, an interruptor, and a missile connected together by insulated electrical conductors fitting between said support and said sleeve;

(D) a firing butt consisting of a box having a removable face and a recess for said dry cell, a frontal opening for a trigger actuating said interruptor, and an opening communicating with said sleeve for permitting passage of said electrical conductors.

2. A weapon as claimed in claim **1**, wherein said missile is connected to the electrical firing circuit by means of contact holes in said support, the electrical conductors being adapted to engage in said contact holes.

3. A weapon as claimed in claim **1**, wherein ebonite terminals are provided in an upper opening and a lower opening of the recess for the dry cell, one of the terminals being fixed and the other sliding against the pressure of a maintaining spring of a dry cell resting on the lower face of said box.

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