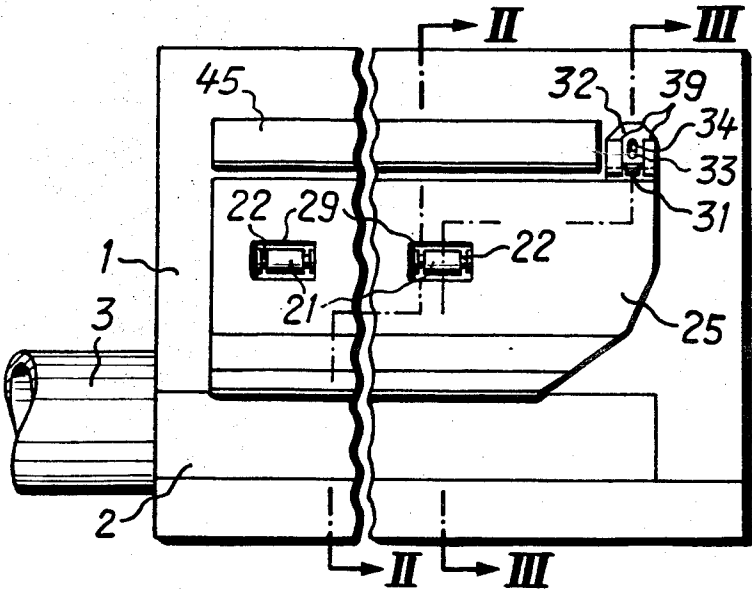


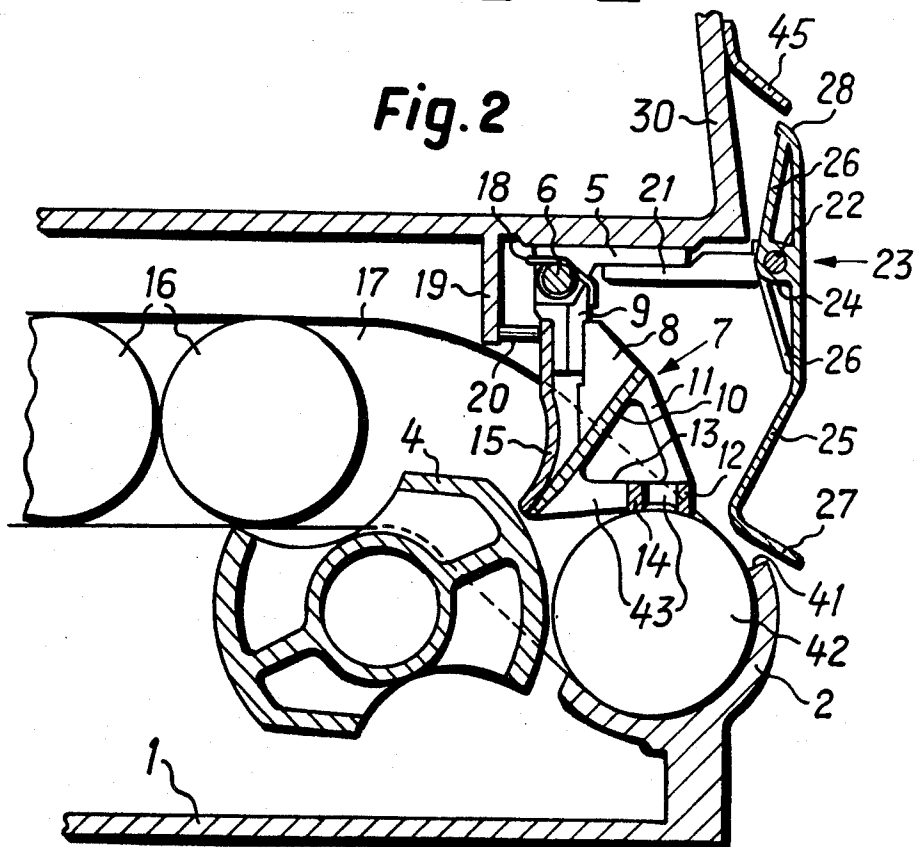
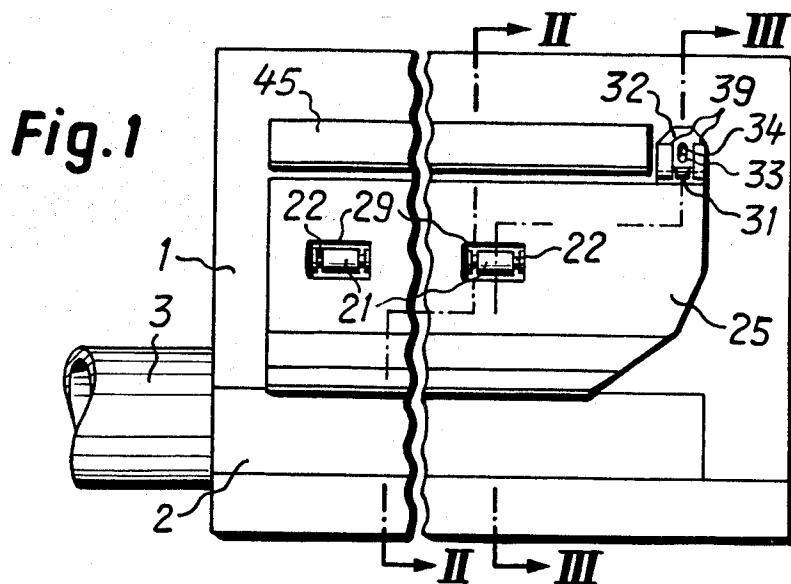
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[33] **Switzerland**
[31] **17887**

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Primary Examiner—Samuel W. Engle
Attorney—Wenderoth, Lind & Ponack

[54] **ROCKET LAUNCHER**
 5 Claims, 4 Drawing Figs.
[52] **U.S. Cl.**..... **89/1.801,**
 89/1.803, 89/33 BA
[51] **Int. Cl.**..... **F41f 3/04**
[50] **Field of Search**..... **89/1.8,**
 1.801, 1.803, 1.816, 1.804

ABSTRACT: A rocket launcher having a magazine chamber which houses a loading tray which terminates into a launcher tube. A conveyor roller for feeding the rockets laterally into the loading tray. An apertured closure member having a backscattering surface for the emerging rocket propelling gases and an apron member which acts as a further backscattering surface for the chamber arranged on the magazine chamber. In this way the torques which are exerted, in operation, on the magazine chamber and which are caused by the pressure of the rocket propelling gases on the two backscattering surfaces are of substantially equal size and are directed in opposite directions. The apron member forms a part of a flap member, which can be swung out under the pressure of the escaping rocket propelling gases.





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Fig. 3

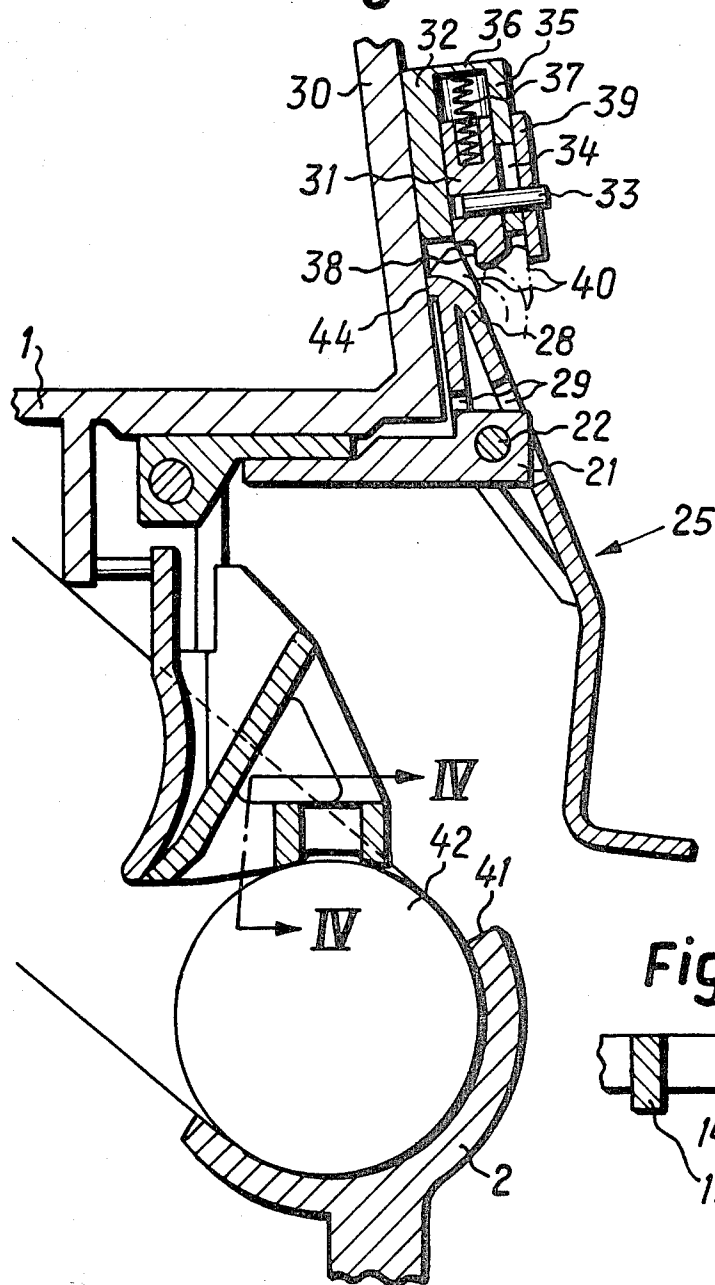
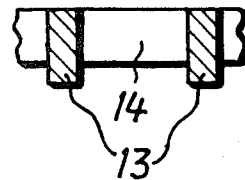


Fig. 4



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ROCKET LAUNCHER

The present invention relates to a rocket launcher, of the type comprising a magazine chamber which houses a loading tray which terminates into a launcher tube, a conveyor roller for feeding the rockets laterally into the loading tray and an apertured closure member having a backscattering surface for the emerging rocket propelling gases.

In the case of a rocket launcher of this type, the pressure of the rocket propelling gases on the aforesaid backscattering surface produces a torque which acts on the rocket launcher, whereby a deviation of the same from the firing direction occurs and the firing precision is impaired.

The present invention aims to prevent this disadvantage. The present invention provides a rocket launcher of the above type comprising an apron member which acts as a further backscattering surface for the chamber is arranged on the magazine chamber whereby torques which are exerted in operation on the magazine chamber and which are caused by the pressure of the rocket propelling gases on the two backscattering surfaces are of substantially equal size and are directed in opposite directions.

In a preferred embodiment of the invention, the apron member is arranged to provide an outwardly bounding wall for the magazine chamber. By this means, the amount of dust and dirt getting into the loading tray through the vents in the closure member is reduced during a country journey of a vehicle carrying the rocket launcher.

An embodiment of the invention will now be described by way of example only with reference to the accompanying diagrammatic drawings in which:

FIG. 1 shows a side view of a magazine rocket launcher;

FIG. 2 shows a section along the line II—II in FIG. 1, with a pivotally mounted apron member swung in towards the magazine chamber;

FIG. 3 shows a section along the line III—III in FIG. 1, with the apron swung away from the magazine chamber;

FIG. 4 shows a section along the line IV—IV in FIG. 3.

Referring to the drawings, securely connected to a magazine chamber 1 of a rocket launcher is a loading tray 2, having a longitudinal axis, which terminates into a launcher tube 3 coaxially arranged therewith. Pivotally mounted in the magazine chamber 1, adjacent to the loading tray 2, is a conveyor roller 4, the axis of which extends parallel to the axis of the loading tray 2. Braced in supports 5 fastened to the magazine chamber 1 is a spindle 6 (axis 6), which extends parallel to the axis of the loading tray 2.

A loading flap 7, which also acts as a closure member, is rotatable about the spindle 6 by means of arms 8 and hub pieces 9. The arms 8, which are of equal length, carry a plate 10, the position of which, as represented in FIGS. 2 and 3, is defined by a plane which forms an acute angle with the plane comprising the axis of the loading tray 2 and of the conveyor roller 4. A line perpendicular to the surfaces of greatest area of the plate 10 and passing through the center of gravity of the plate extends between the axis 6 and the conveyor roller 4. Fastened to the plate 10 are supports 11, which are connected to one another by a bridge member 12 extending parallel to the axis of the loading tray 2. Ribs 13 extending transversely to the strip 12 and connected thereto and to the plate 10 carry a further strip 14 extending parallel to the strip 12. The strip 14 is arranged nearer to the plate 10 than the strip 12. The surfaces facing the interior of the loading tray 2, of the strips 12 and 14 have, when viewed from the axis of the loading tray, have a radius of curvature which corresponds to the radius of curvature of the inner surface of the loading tray. The strips 12, 14 serve as a guiding part of the loading chamber flap 7.

A plate 15 is connected to the hub pieces 9 which are rotatable on the spindle 6. The plate 15, the lower end of which is braced on the plate 10, terminates together with the conveyor roller 4 the loading chamber in the direction facing the magazine 17 containing the rockets 16. The ends of a torsion spring 18 surrounding the spindle 6 are braced on the

support 5 and on the hub piece 9 of the loading chamber flap 7. Under the action of the spring 18, the plate 15 abuts against the stop pin 20, which is connected to a rib 19 of the magazine chamber 1.

Securely connected to the magazine chamber 1 are supports 21, in which the shaft 22, having an axis which extends parallel to the axis of the loading tray 2, is mounted. A flap, generally designated by 23 is pivotally mounted on the spindle 22 by way of hub pieces 24. The spindle 22 lies sufficiently close to the wall 30 of the magazine chamber 1 that between the same and the hub pieces 24 there is only a narrow passage area for gases. The hub pieces 24 are connected to an apron 25 which projects upwardly and downwardly from the shaft 22. The apron is reinforced by ribs 26, which are connected to the hub pieces 24. The apron 25 is directed, in the position of rest shown in FIG. 2, substantially perpendicular to the plane including the axis of the loading tray 2 and of the conveyor roller 4.

The lower part of the apron 25 is directed towards the axis of the loading tray and its end 27 is bent perpendicularly outwards to form an L-shaped cross section. This L-shaped cross section forms a structural strengthening of the apron 25. The upper edge 28 of the apron 25 is curved towards the magazine chamber 1 and has a stop face 44. The ends of the supports 21 protrude through apertures 29 in the apron 25.

In accordance with FIGS. 1 and 3, a slide 31 is movably mounted in a housing 32 secured to the wall 30. A pin 33 abuts against the slide 31 and projects outwardly through a slot 34 in the wall 35. The slot 34 provides a limitation of movement of the slide 31, which is held in a lower end position by a spring 37 connected to the inner surface of a cover 36 of the housing 32. On the end protruding downwardly out of the housing 32, the slide 31 has a surface 38. On the outward facing side of the housing 32 and fastened on both sides of the slot 34 are two strips 39. The lower end faces of the strips 39 and of the slide 31 are coplanar. A roof-shaped cam 40 is fastened on the edge 28 of the apron 25. A strip 45 is fastened to the wall 30 of the magazine chamber 1 and projects outwardly from the same. The strip 45 covers the space between the upper part of the apron 25 and the housing wall 30.

During the travel of a vehicle carrying the magazine rocket launcher, the cam 40 of the apron 25 is held clamped between the strips 39 and the slide 31, as shown in dot-dash lines in FIG. 3. The apron 25 which is in the position of rest prevents dust and dirt from penetrating the loading chamber through the apertures 43 (FIG. 2), bounded by the strips 12, 14 and ribs 13, of the loading chamber flap 7, and furthermore between the strip 12 and the surface 41 of the loading tray 2. The strip 45 also serves this purpose.

After detonation of the propellant charge, not shown, of the rocket 42 present in the loading chamber, the gases leaving its nozzle not only flow rearwards, but also expand through the apertures 43 of the loading chamber flap 7 and furthermore, past the strip 12 of the same, into the space bounded by the plate 15 and the apron 25. In this connection, the gases act on the plate 10 and exert thereon a torque, acting in a clockwise direction through the arms 8 and the hub pieces 9 onto the spindle 6 and thereby onto the magazine chamber 1.

The gases simultaneously act on the apron 25, whereby a torque acting anticlockwise (Considered in FIG. 2) is exerted thereon. The apron 25 is thereby rotated into the position shown in FIG. 3, in which position it is braced with the front face 44 of its upper edge 28 on the wall 30 of the magazine chamber 1.

The slide 31 is forced upwards upon this movement of the apron 25 by the cam 40 subsequently moved back by the spring 37 into the locking position, in which it rests the cam 40. The gas force which loads the apron 25 acts via its axis 22 on the magazine chamber 1. In this position, represented in FIG. 3, of the apron 25, this latter does not hinder the rotating movement of the loading chamber flap 7, which this latter carries out anticlockwise about the axis 6 under the drive of the next rocket 16 moved towards the loading tray 2.

The forces which act in opposite directions and which are directed transversely to the firing plane and which are transmitted via the axes 6 and 22 to the magazine chamber 1 are substantially of equal size. Therefore, upon the launching of a rocket, no external force, which derives from the combustion gases and which could result in a deviation of the same and of the loading tray 2 with launcher tube 3, forming the guideway for the rocket, from the intended firing direction, acts on the rocket launcher.

After firing, the slide 31 is raised by means of the pin 33 and by this means the apron 25 is released for swinging back into the position, shown in FIG. 2, in which it is again secured by the slide 31 springing back into its locking position.

I claim:

1. A rocket launcher, comprising a launcher tube, a magazine chamber, a loading tray in said chamber terminating into said launcher tube, a conveyor roller for feeding rockets laterally into said loading tray, and an apertured closure member for said chamber comprising a backscattering surface for the emerging rocket propelling gases, an apron member acting as a further backscattering surface for said chamber arranged on said chamber whereby the torques exerted, in

operation, on said chamber caused by the pressure of the rocket propelling gases on said two backscattering surfaces are of substantially equal size and directed in opposite directions.

2. A rocket launcher as claimed in claim 1, wherein said apron member provides an outwardly bounding surface for the magazine chamber.

3. A rocket launcher as claimed in claim 1 wherein said apron member comprises a part of a pivoted flap member, which can be swung out under the pressure of the escaping rocket propelling gases.

4. A rocket launcher as claimed in claim 3, in which said closure member is pivoted on a spindle fastened to said magazine chamber and said flap member is pivotally mounted on a shaft extending parallel to said spindle and fastened to said chamber.

5. A rocket launcher as claimed in claim 3 wherein said flap member has a cam which, when said flap member is swung outwardly of the launcher, engages into a locking arrangement and where the release of said flap member is effected by a hand-operated unlocking device.

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