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54 **Device for firing a rocket-missile using the container holding the same as launching weapon.**

57 Antitank autonomous weapon (201) device comprising a container firing a warhead rocket (91c).

Such container is disposable and impervious and is fitted with two covers (921,208), an optical

sight aiming system (945), a firing mechanism (930), and the grip (250), the marksman's shoulder rest (240) and a harness (922) to carry the same.

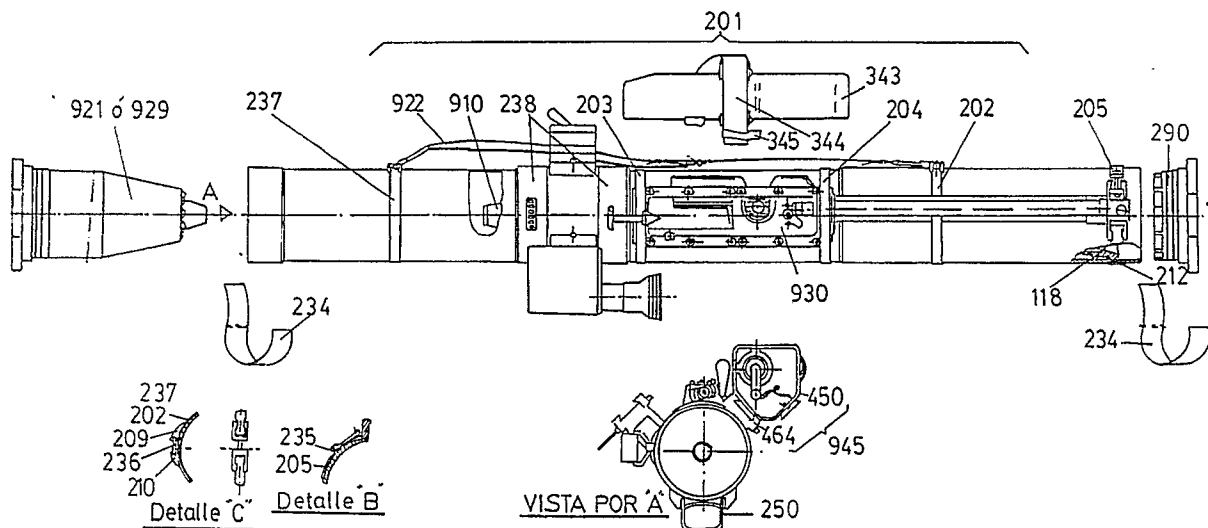


FIG. 1

The object of this Patent of Invention application relates to an antitank weapon device, comprising a warhead rocket fired from its actual container, disposable upon firing, fitted with the pertinent front and rear covers, optical sight aiming system, firing mechanism, shoulder rest, grip and carrying harness, the above as a whole making up an autonomous weapon system requiring no other means to be used.

The device subject of this Patent of Invention application sets forth a series of improvements and original elements on systems designed for a similar use, yielding a light, easy-to-use object provided with all requisite safety measures, both when stored and during use.

#### DESCRIPTION OF THE DRAWINGS

- Fig. 1: Overall system layout.
- Fig. 2: Front cover.
- Fig. 3: Fragmentary front cover (optional).
- Fig. 4: Rear cover.
- Fig. 5: Fixed rear cover (optional).
- Fig. 6: Aiming system.
- Fig. 7: Firing mechanism.
- Fig. 8: Grip and shoulder harness.
- Fig. 9: Rocket.

#### DEVICE DESCRIPTION

The launcher-container, 201, Fig. 1, essentially comprises a cylindrical tube with certain reinforcements constructed with resins reinforced with fibreglass, kevlar, carbon, and so forth, or which can even be metallic, housing the rocket, 910, inside so as to make up a single unit, albeit allowing free flight of the rocket 910 upon firing.

The rocket, 910, is attached to the launcher-container, 201, by means of the configuration of the front, 921, and rear, 208, covers, and of the protuberances, 212, that cross through the launcher-container and fit into the relevant housings provided in the rocket stabilizer, 118. Such protuberances, 212, are held by means of the flange, 205, attach the rocket 910 to the launcher-container, 201, and are sheared upon firing.

The front, 921, and rear, 208, covers are positioned such that they contact both ends of the rocket, 910, equally assisting in locking the same when sealed with the launcher-container, 201, by means of the adhesive tapes, 234, that are moreover useful to render the system impervious. The front cover, 921, as shown in figure 2, is fitted with supplements, 215, stacked and held in the necessary number with the protuberances, 216, provided therefor, which allow the front tip of the rocket, 910, to rest on the element 214, thereby absorbing the tolerances established between the rocket's, 910,

and the launcher-container's, 201, overall length. The rear cover 208, Fig. 4, being close to the area of the protuberances, 212, determining the position of the rocket, 910, needs no setting elements.

The front cover, 921, has been fitted with a housing, 240, filled with a dessicant, 230, such as silica-gel or the like, being in contact with the air inside the launcher-container, and preventing the presence of dampness inside the launcher-container, 201.

The inside thereof is provided with supports, 242, that together with the cover, 241, allow the sight, 945, to be housed during system storage and transportation.

Both front, 921, and rear, 208, covers have an eight-angled outside section preventing the system from rolling on sloped ground. Both covers must be removed before firing, although in the event of firing being effected with the covers on by oversight, neither the marksman nor the system, obviously barring the two lids, would be damaged.

Optionally, and so that the system may be fired without having to remove the covers, the latter can be replaced by the front fragmentary, 929, fig. 3, and fixed rear, 290, fig. 5, covers.

With such covers, the rocket, 910, is attached to the launcher-container, 201, by means of the protuberances, 212, acting as previously set out, and of the detents, 240, provided in the fixed rear cover, 290, for when the cover, 290, is inserted in the launcher-container, 201, and slightly turned clockwise, the detents, 240, are housed inside the slots of the rocket stabilizer, 118, thereby holding the same.

Both the protuberances, 212, and the detents, 240, are sheared upon firing, and the cover, 290, flies off.

The fixed rear cover, 290, is provided with a housing, 241, filled with a dessicant, 230.

The fragmentary front cover, 929, because of the slots, 248, disposed lengthwise and radially, is fragmented upon firing, allowing the rocket, 910, to go past.

Both covers have an outside eight-angled section allowing the system to be supported vertically and preventing it from rolling horizontally on sloped ground.

The fragmentary front cover, 929, is stuck to the launcher-container, 201, and the fixed rear cover, 290, is attached to the launcher-container, 201, by means of the adhesive tape, 234, that together with the toric ring, 239, render the system impervious.

The aiming system, 945, is made up by the optical sight, 450, and its fixed support, 460, within the launcher-container, 201, Figs. 6A and 6B.

The optical sight, 450, is a double magnification sight and its reticle, 465, is permanently illumi-

nated by a tithrium lamp.

Such reticle, 465, is marked and numbered according to the type of warhead used, has two stadimetric curves to calculate distance and prediction marks to the right and left of the curves, in order to aim at targets moving crosswise at speeds of 20 and 40 km/hour, Fig. 6C.

The sight, 450, is wholly impervious and can be held in the launcher-container, 201, support, 460, in two different positions right-left by means of dovetails, 464, provided in the screws, 461, and of the elements, 462, and 463. Turning the screws, 461, tightens the launcher-container, 201, support, 460, against the optical sight, 450, fixing the same.

Because of this type of support, 460, the marksman can aim and fire the system resting the same on his right or left shoulder, as he shall see fit, depending on which of the two positions the sight, 450, has been set in.

In order to reduce the system's size and expedite transport thereof, the optical sight, 450, can be placed inside the housing and supports, 242, provided in the front cover, 921, Fig. 2, right until firing is to take place, whereupon it must be placed in the launcher-container, 201, support, 460.

The firing mechanism, 930, has been designed so as to provide efficient action to start the firing sequence, that requires no care during storage, cannot be affected by the presence of electromagnetic fields and has no mechanical or electric energy stored whatsoever.

All the foregoing is achieved with this system's firing mechanism, as shown in figure 7.

Firing sequence commences when the percussion hammer, 312, strikes the starting cap, 331. The percussion hammer, 312, is essentially a rod guided in an opening provided in a fold of the element, 314, in another half-opening provided in yet another fold of the same element and in an aperture existing in the partition of the element, 301, as can be observed in figure 7 E. A spring, 313, subjected to negligible pressure until the firing mechanism, 930, is loaded, surrounds the percussion hammer 312, resting on a collar provided in the latter and on one of the aforesaid folds of the element 314. Such element, 314, is connected to the loading button, 316, by means of the pins, 315.

When at rest, figures 7 A and 7 E, the percussion hammer, 312, cannot move towards the starting cap, 331, because of the trigger, 309, as shown in the detail B 3, that stays in such position because of the spring, 310, held by means of the pin, 311. In turn, the element 314 cannot move because of the loading safety catch's, 321, claw held at the relevant cleft by action of the spring, 320, held by the pin 319.

A pennant catch, 306, is held in the safety position, blocking the percussion hammer's, 312,

path towards the starting cap, 331.

Figure 7 B shows the mechanism when loaded. Such loading involves pressing the button, 318, that makes the loading safety catch, 312, swing, releasing the aforesaid lock on the element 314. By then pressing the loading button, 316, and releasing the button, 318, the element 314, slides until the loading safety catch, 321, claw holds on to the second cleft in the element, 314, locking the same. After completing this procedure, the spring, 313, is compressed between the percussion hammer's, 312, collar and the fold provided in the element 314. The percussion hammer's, 312, collar is still cut off by the shape of the trigger, 309, detail B3.

If firing takes place in this position, on pressing the trigger 309, its lower fold releases the percussion hammer's, 312, collar, detail D2 and the energy stored in the compressed spring, 313, drives the percussion hammer, 312, to fall upon the pennant safety catch, 306, that was still in the safety position and hence prevents firing. The mechanism can be reloaded pressing the button, 318, to direct the loading button, 316, to its rest position and repeat the aforesaid loading process.

Figure 7 C shows how the pennant catch, 306, has turned 90° by means of the cock 307. This pennant safety catch 306 can take up two stable positions, safety or firing because of the rocking spring 308 design.

If firing takes place in this position shown in figure 7 C, it is possible to move the percussion hammer's position to the starting cap, 331, and the percussion hammer, 312, falls upon the said cap, 331.

The rear of such cap, 331, rests on the striking plate 325, and is fixed at the front by the element, 326, screwed onto the element, 323, which is locked in respect of the casing, 301, by means of the slices, 322 and 324, and the relevant slots shown in the element 323.

The starting cap, 331, when struck by the percussion hammer, 312, detonates and ignites the fast fuse 337 duly confined by the tube 336 so that gunpowder deflagration is almost instantaneously spread to the element 328. The first fuse, 337, ends in such element where a second fuse, 338, starts and, with the confinement provided by the element 127, spreads the fire to the igniter, 122, figure 7 E. Such igniter has a gunpowder charge, 128, that is ignited by the fuse and that in turn starts combustion of the rocket propellant gunpowder.

The fuse, 337, and its confinement, 336, are protected from blows or damage by the casing, 327. The element 328 has two plugs, 329, placed after the fuses have been inserted, blocking the openings provided in the element 328.

The whole firing mechanism 930 described is

housed within its casing formed by the elements 301, 302 and 303, the gasket 304 and the closing partition 305. Such gasket is designed to project outside the trigger, 309, protecting the same from water or dirt as shown in the details of figure 7. This rubber joint 304, and the toric joints 332, 333, 334 and 335 tightly close the firing mechanism 930.

Furthermore, the previously described ignition transmission system is also rendered impervious by providing the confinement 336 over the counter-shapes of the elements 323 and 328 and the bicones 126, that render the confinement 127 in the elements 328 and 122 safe and impervious. All the sealing joints such as the above, toric joints, bicones, plugs 329, and so forth, are assembled duly covered with a silicon or like sealant.

The cover 343 over the mechanism has a twofold objective, on the one hand preventing that the firing mechanism 930 be manipulated until the cover, 343, is removed just before firing, and on the other ensuring that if the cover, 343, can be assembled, the firing mechanism 930 is at rest and the pennant safety catch, is in the safety position and prevents the passage of the percussion hammer, 312.

This is achieved by means of the ribs, 346 and 347 fitted inside the cover 343.

The rib 340 prevents the cover from being mounted if the firing mechanism is not at rest.

The rib 347, in addition to preventing the cover from being placed if the pennant safety catch, 306, is not in the safety position, prevents displacement of the pennant safety catch, 306, once the cover, 343, has been placed.

The cover 343 is attached to the launcher-container by means of the adhesive tape 344, figure 1, and the seal, 345, placed over the adhesive tape, 344, allows us to know whether someone has manipulated the firing mechanism.

In order to expedite use of the system, the latter is fitted with a grip, 250, and a rest for the marksman's shoulder, 240, fig. 8.

During transport, both the grip, 250, and the shoulder rest, 240, must be folded on the launcher-container, 201, and when firing, both must be placed at right-angles to the launcher-container, 201.

The grip essentially comprises its support, 251, and the actual grip, 252, attached to the support by means of the pin, 254. The support's, 251, claws, 253, are useful to set the grip, 252, in the firing position, attained by pulling the same.

The shoulder rest, 240, comprises a rest, 242, support, 241, and an adjustment harness, 243. The rest, 242, is joined to the support, 241, by means of the pin, 244. The adjustment harness, 243, useful for fitting to the marksman's shoulder, is joined

to the rest, 242, and the support, 241.

Pulling the rest, 242, releases the support, 241, claws, 245, that establish the same in the transport position, driving it to a position perpendicular to the launcher-container, i.e., a firing position.

Both the grip, 250, and the shoulder rest, 240, can be folded up again pushing them again towards the launcher-container.

The system is carried by means of the weapon carrying harness, 922, fig. 1, adjustable by means of its buckle 219.

All the aforesaid mechanisms and supports are attached to the outside of the launcher 201, by means of the adhesive tapes 203, 204 and 238, and by the flanges 202, 205 and 237, anchored in the braces 209 and 210, which are drawn by means of their respective screws 235 and 236, fig. 1.

The missile or rocket, 910, fig. 9, essentially comprises a hollow charge warhead 912, a rocket motor 913, a connecting ramrod 107, and a fuse 990.

The warhead, 912, body holds the explosive, 129, and case thereof, 103, which may be tapered or have any other non-straight-line generatrix revolution shape. The multiplier, 105, and its support, 131, are housed therewithin.

The tip of the nose, 102, is provided with a toothed star, 101, whose shape, material and treatment thereof prevent slipping on the target and therefore determine due operation of the warhead even when very small angles are involved.

The rocket motor, 913, comprises a propellant 130, with its support, 114, a rocket motor 117 and a stabilizing element, 118, with tip-up fins, 119, that rotate about the pins 121 driven by the springs 120 when the rocket 910 leaves the launcher-container 201.

The stabilizing element, 118, also acts as last nozzle, 117, expansion, and is provided with holes, 140, and slots, 141, allowing the rocket, 910, to be attached to the launcher-container, 201, by means of the protuberances 212, or of the slots, 240, provided in the fixed rear cover 290, figs. 1, 4 and 5.

Rocket plugging and ignition takes place by means of igniter, 122, as previously described for the firing mechanism.

The connecting ramrod, 107, is useful for connecting the warhead, 912, to the rocket motor, 913, and to house the fuse, 990.

Such fuse, 990, is an impact fuse whose detonator, 001, is located in a rotor, 002, that holds the detonator, 001, out of line with the rest of the warhead's, 912, pyrotechnical sequence, until the fuse has been loaded.

The fuse has a loading time safety contrivance and a three-blade fall safety contrivance. Such

safety contrivances are complemented with the core safety contrivance, elements 109-110 and system spring 111. When the rocket, 910, is inside its launcher-container, 201, such core safety contrivance blocks the rotor, 002, and prevents loading of the fuse, 990.

Upon firing, when the rocket missile 910 leaves the launcher-container 201, the spring 111, ejects the elements 109 and 110 outside the connecting ramrod housing 107 as a whole, and the rotor, 002, is released, thereby allowing the fuse, 990, to be loaded.

To reinforce the percussion hammer's 003 impact on the detonator, 001, the fuse, 990, is enveloped by a mass, 133, whose pointer, 132, strikes the percussion hammer, 003, when the rocket falls upon the target.

Although the device is essentially an antitank weapon and a hollow charge warhead rocket has been described, the patent does not restrict the type of warhead to be used, that could be of the hollow charge antitank, hollow charge antitank and antipersonnel, smoke and fire, inert warhead for instruction purposes, and so forth.

## Claims

1. Device for firing a rocket missile using the container holding the same as launching weapon, characterized in that the launcher container thereof comprises a resin tube reinforced with fibreglass, kevlar, carbon and so forth, although it can also be metallic, fitted with a support to which an optical sight is coupled, a firing mechanism, a grip, a shoulder rest and a carrying harness, the ends thereof being closed with two covers.
2. Device for firing a missile, according to claim 1, characterized in that it is wholly impervious because its firing mechanism protection and its two covers.
3. Device for firing a rocket missile, according to claims 1 and 2, characterized in that it can be fired without having to remove the covers.
4. Device for firing a rocket missile, according to claims 1 to 3, characterized in that the covers have a housing filled with a silica-gel or like dessicant, to control dampness within the launcher container.
5. Device for firing a rocket missile, according to claims 1 to 4, characterized in that the front cover allows the rocket to be fitted to the launcher container by means of supplements.

6. Device for firing a rocket missile, according to claims 1 to 5, characterized in that the rear cover allows the rocket missile to be attached to the launcher container by means of detents housed in the rocket stabilizer and sheared upon firing.
7. Firing device, according to claims 1 and 6, characterized in that the rocket missile is held within the launcher container by means of protuberances crossing through the launcher container and housed in the rocket stabilizer, such protuberances being sheared by the actual rocket thrust when fired.
8. Firing device, according to claim 1, characterized in that aiming and firing can be effected resting the same on the marksman's right or left arm, as he shall see fit.
9. Firing device, according to claims 1 and 8, characterized in that the launcher container has a support allowing assembly and dismantling of an optical sight at two different positions for the marksman to aim the device resting the same on his right or left shoulder, as he shall see fit.
10. Firing device, according to claims 1 and 9, characterized in that the optical sight can be carried inside the front cover.
11. Firing device, according to claim 1, characterized in that the firing mechanism is of the pyrotechnical type, and is started by striking the relevant primer charge that transmits its ignition effect by means of a rapid fuse to the rocket motor igniter.
12. Firing device, according to claims 1 and 11, characterized in that when its firing mechanism is at rest, the percussion hammer driving spring is discharged to avoid the risk of losing resiliency due to extended storage.
13. Firing device, according to claims 1, 11 and 12, characterized in that the firing mechanism cannot be loaded by chance because a recoil platform integral with the loading button is held at its notch by a loading safety catch, fitted with a spring, always tending towards a locked position.
14. Firing device, according to claims 1 and 11 through 13, characterized in that in order to load the firing mechanism, the loading safety catch must be released pressing a button counteracting the effect of such catch's spring,

- and simultaneously pressing the loading button until the safety catch clings to the second recoil platform cleft, thereby achieving that the percussion hammer spring be compressed and the mechanism ready to be fired by pulling the trigger. 5
15. Firing device, according to claims 1 and 11 through 14, characterized in that the aforesaid firing mechanism is moreover provided with a firing safety catch comprising a pennant that can rotate 90° about its axis, so that when its detent points to the safety position, the pennant acts as shield for the starting cap or primer charge, and if the trigger were pulled in such position, the percussion hammer would be held by the pennant without actually striking the primer charge, thereby fulfilling its role as efficient safety catch; therefore, if the pennant is in the firing position, it allows free passage of the percussion hammer, and it is hence obvious that under such conditions, when the trigger is pulled, the percussion hammer strikes the primer charge due to the energy held by the driving spring that had been compressed when the firing mechanism was loaded. 10
16. Firing device, according to claims 1, 4 and 11 through 15, characterized in that the trigger holds the percussion hammer by means of a collar and when such trigger is pulled, the latter turns about an axis and, overcoming the resistance of a spring surrounding the centre of such axis, releases the collar, thereby determining the percussion hammer's forward movement. 15
17. Firing device, according to claims 1 and 12 through 16, characterized in that the whole firing mechanism is rendered impervious by means of a rubber joint tightly fitted between an internal and an external base, at the same time as the said joint covers the outside of the trigger, thereby rendering the lot impervious, since such joint is trapped between the relevant partitions and the inside of the casing. 20
18. Firing device, according to claims 1 and 11 through 17, characterized in that the imperviousness of the other mobile elements is achieved by means of toric joints, and that of the canalizer tube with the primer charge bearing element, by means of the plastic deformation at the end of the tube and a sealant. 25
19. Firing device, according to claims 1 and 11 through 18, characterized in that fire is conveyed from the primer charge to the rocket motor igniter through the aforesaid rapid gunpowder fuse, and because of a confinement representing a canalizer designed for such specific purpose, gunpowder combustion is spread almost instantaneously to a cross piece, and similarly through another fuse, also confined by means of a tube, to the igniter, which in turn starts combustion of the rocket propellant gunpowder. 30
20. Firing device, according to claims 1 and 11 through 19, characterized in that the fuse mentioned first in the previous paragraph and its confinement canalizer are protected from blows and other hazards by means of a wall provided with a spacing chamber. 35
21. Firing device, according to claims 1 and 11 through 20, characterized in that the imperviousness of the aforesaid second canalizer with the cross piece and the igniter is achieved by means of two bicones on the housings of the said cross piece and the igniter. 40
22. Firing device, according to claims 1 and 11 through 21, characterized in that it has a cover ensuring: that the firing mechanism is mounted at the rest position; that the pennant safety catch is at the safety position and that the mechanism can be handled until the cover is removed. 45
23. Firing device, according to claims 1 and 11 through 22, characterized in that the cover described in the preceding paragraph has a seal ensuring that the cover has not been manipulated. 50
24. Firing device, according to claim 1, characterized in that the launcher container is provided with a fold-up grip and rest for the marksman's shoulder, and that such rest is fitted to the marksman's shoulder by means of an adjustment harness. 55
25. Firing device, according to claims 1, 6 and 7, characterized in that the missile or rocket thereof is provided with a stabilizer element with fold-up fins, acting as last nozzle expansion and provided with holes and slots allowing the rocket to be attached to the launcher container. 60
26. Firing device, according to claims 1 and 25, characterized in that the tip of the rocket missile's nose carries a star with a shape and processing of material designed for the shot to 65

stick to the target without slipping down the same, even when very small angles are involved, thereby managing the missile to decelerate instantaneously and the warhead to explode.

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27. Firing device, according to claims 1, 25 and 26, characterized in that the device has a core safety contrivance preventing the fuse from being loaded until the rocket leaves the launcher container.

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28. Firing device, according to claims 1, 25 through 27, characterized in that the fuse is surrounded by a mass whose pointer strengthens the fuse's percussion hammer impact on its detonator, when the rocket falls upon a target.

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29. Firing device, according to claims 1 through 28, whose warhead is not restricted to a hollow charge, but the rocket may be considered with whatever warhead is deemed appropriate, hollow charge antitank, hollow charge antitank and antipersonnel, smoke and fire, inert and so forth.

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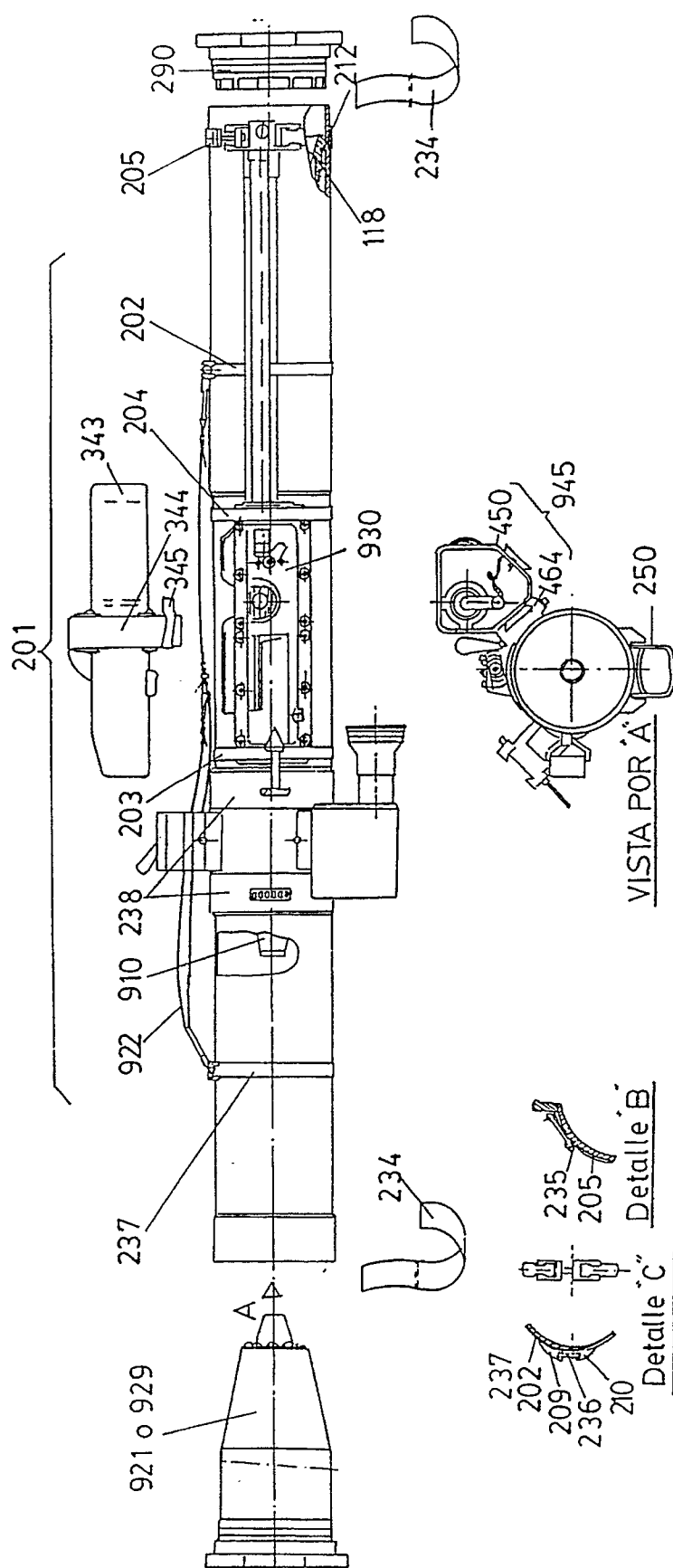


FIG. 1

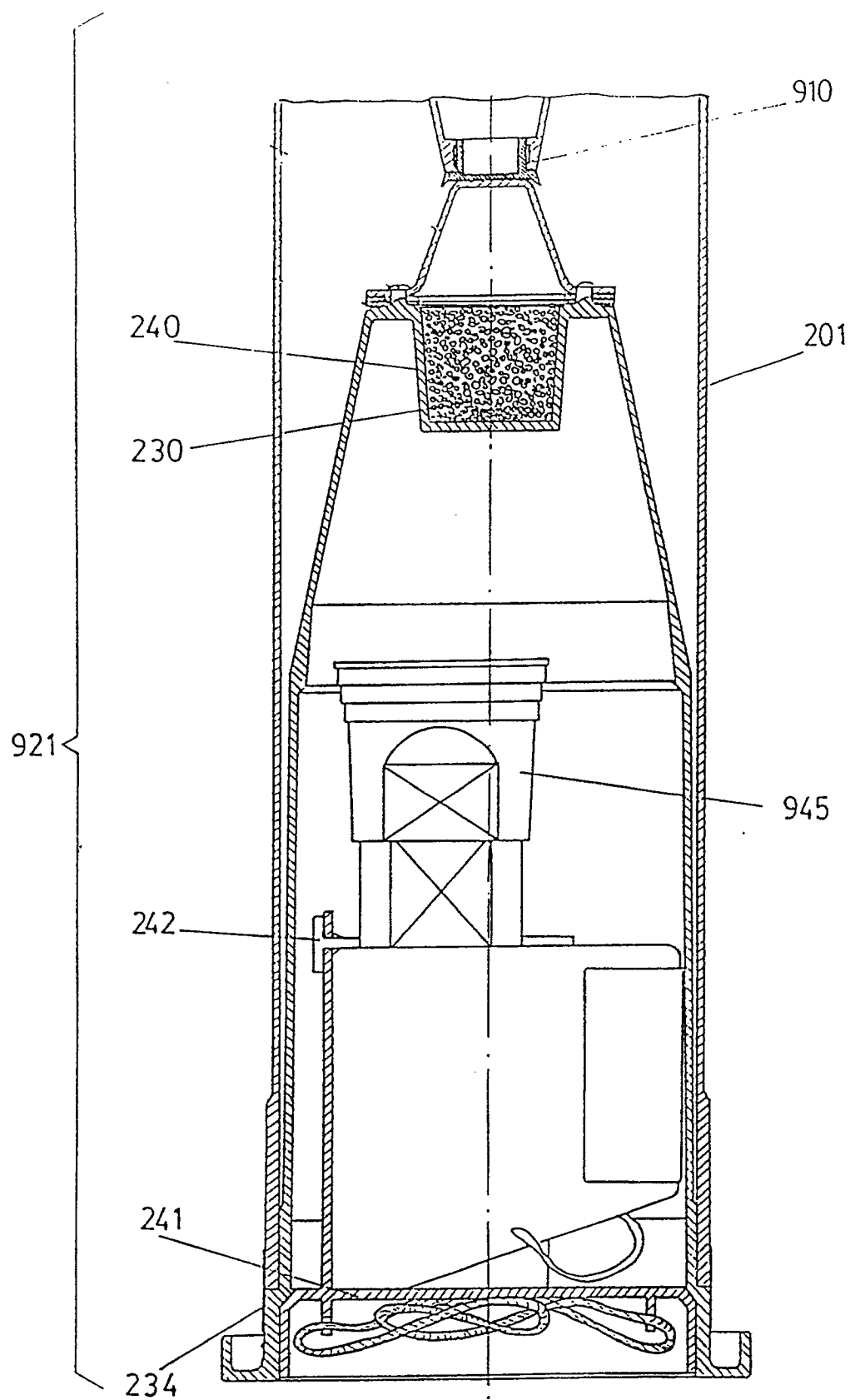


FIG. 2

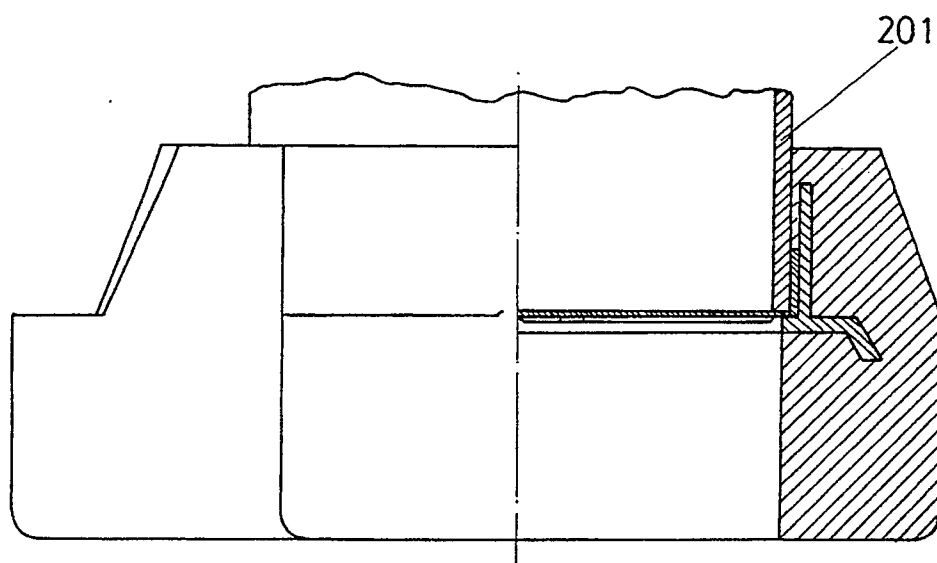
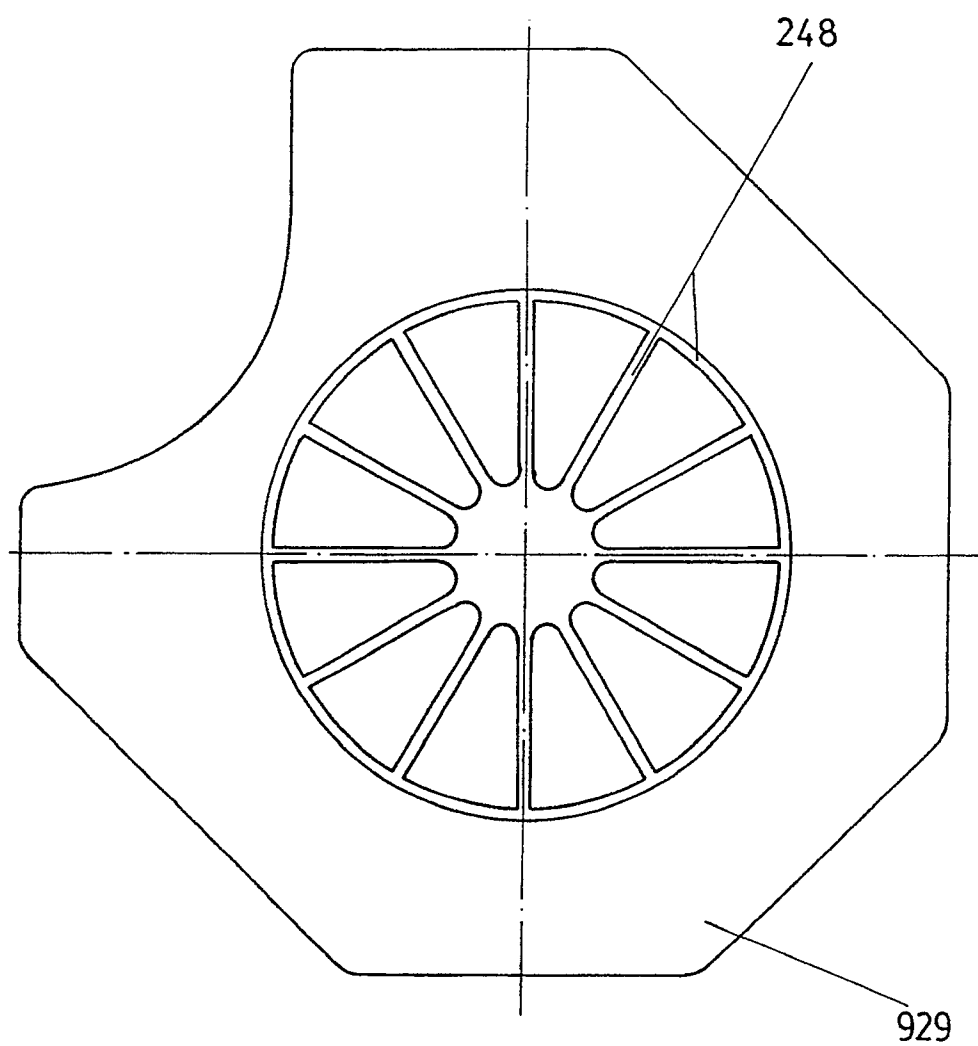


FIG. 3

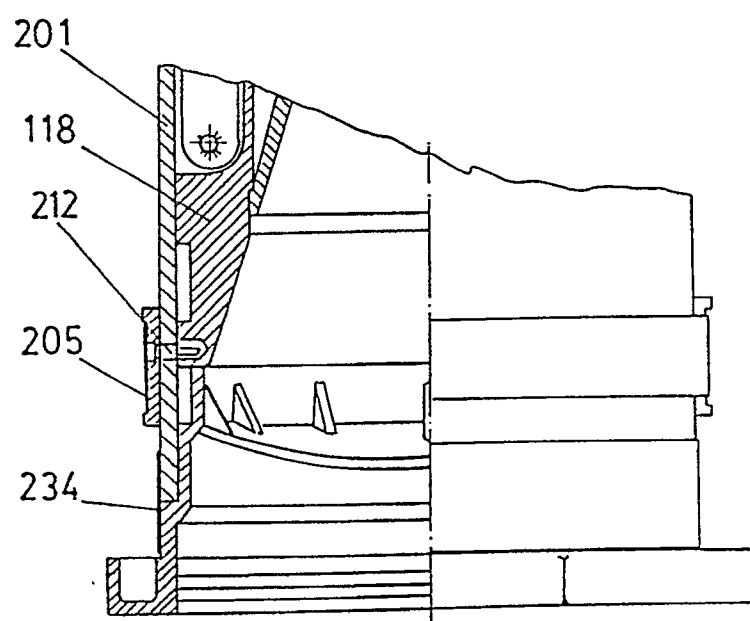
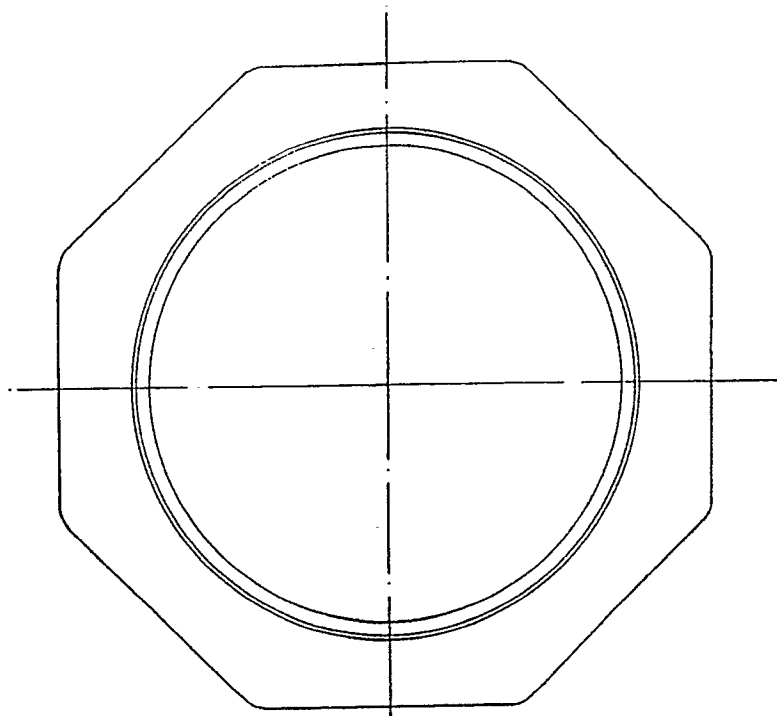


FIG.4

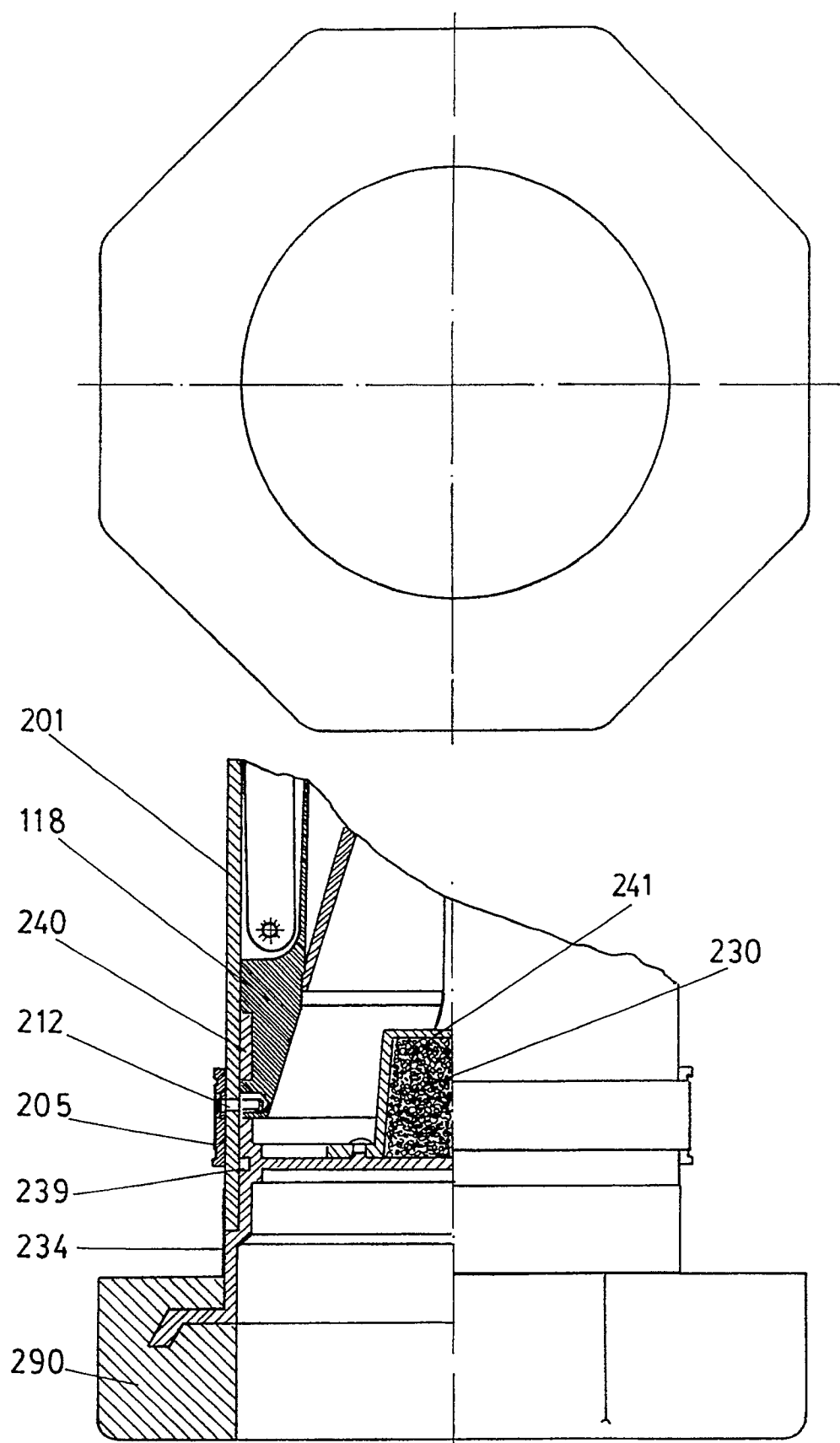


FIG. 5

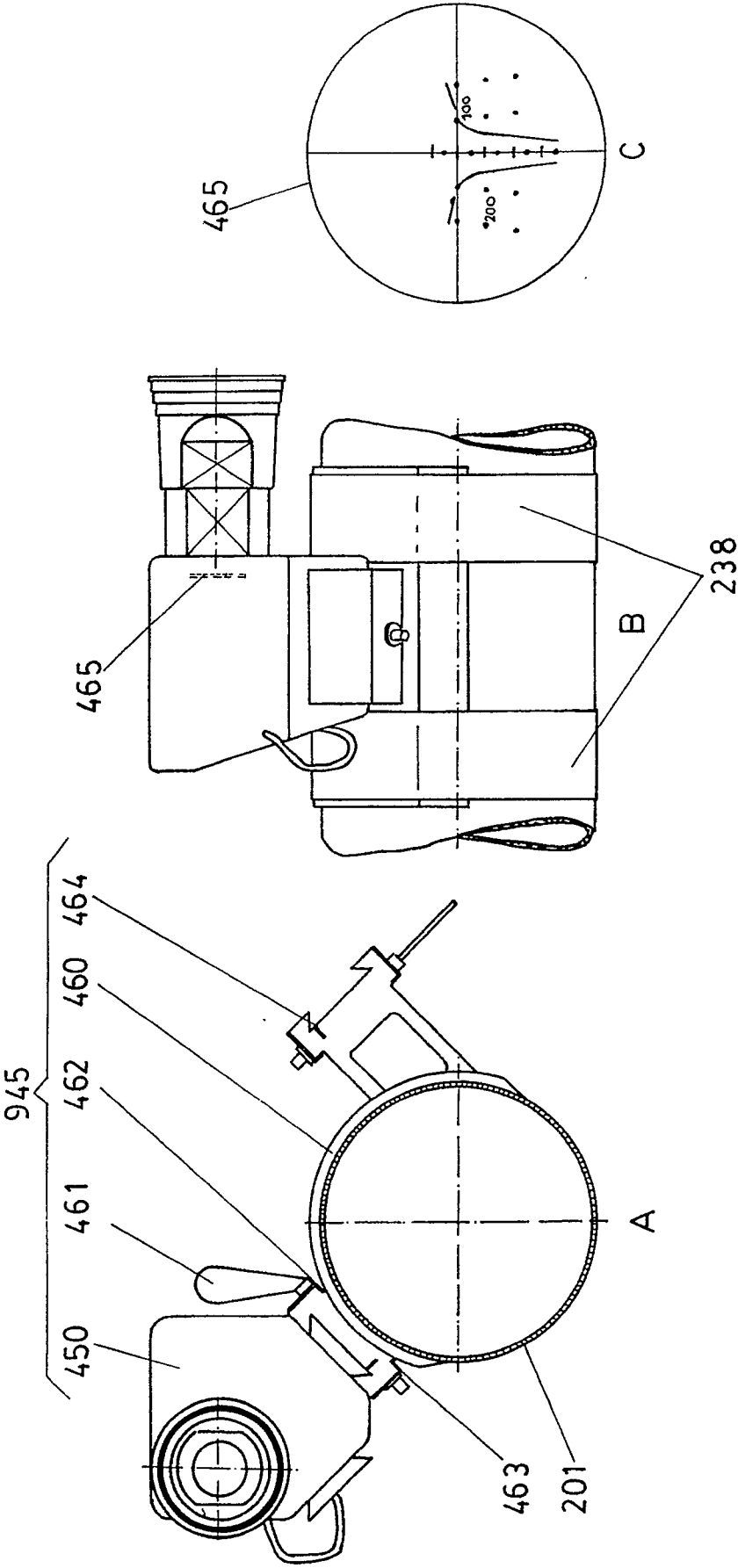


FIG. 6

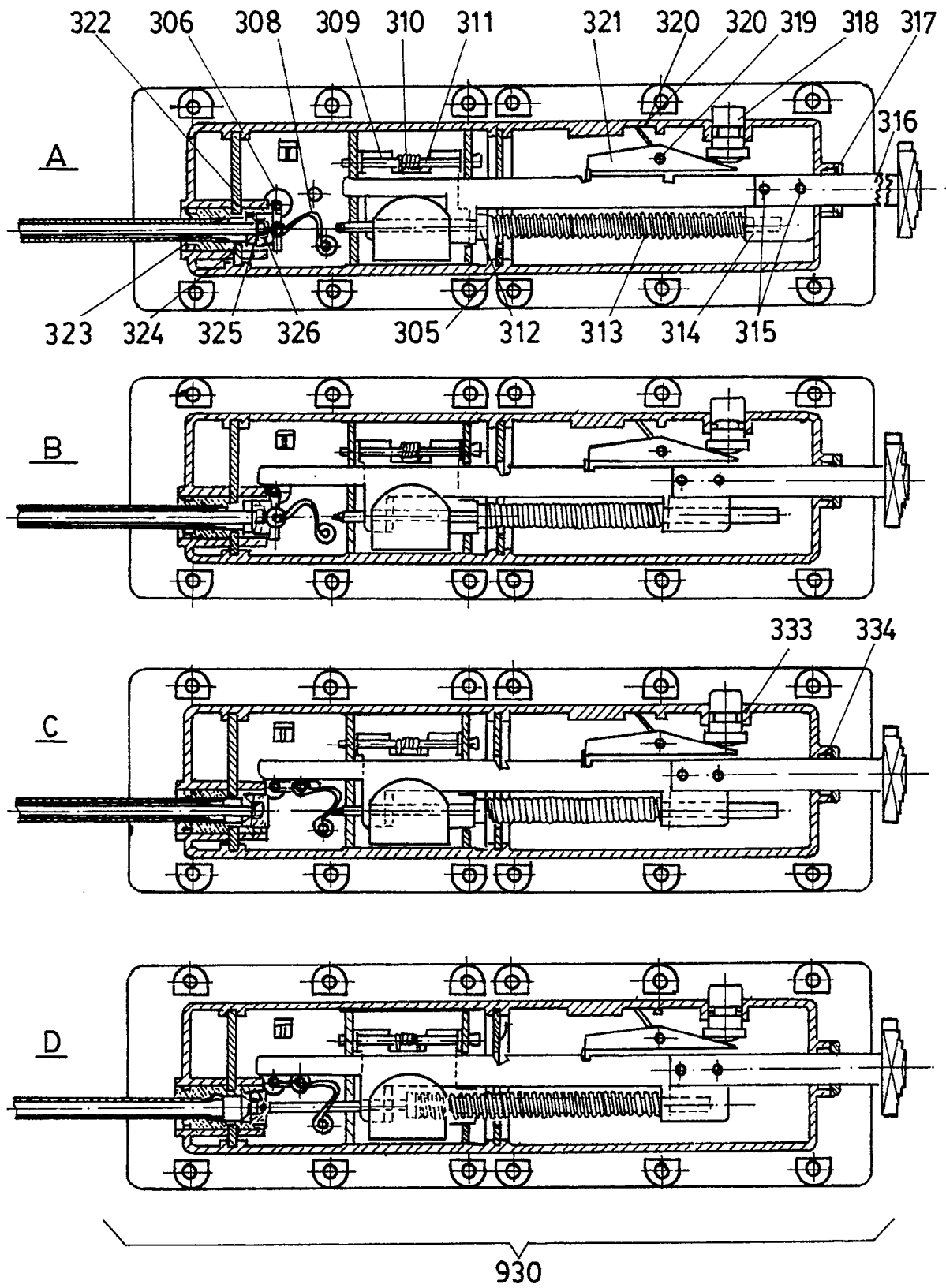


FIG. 7

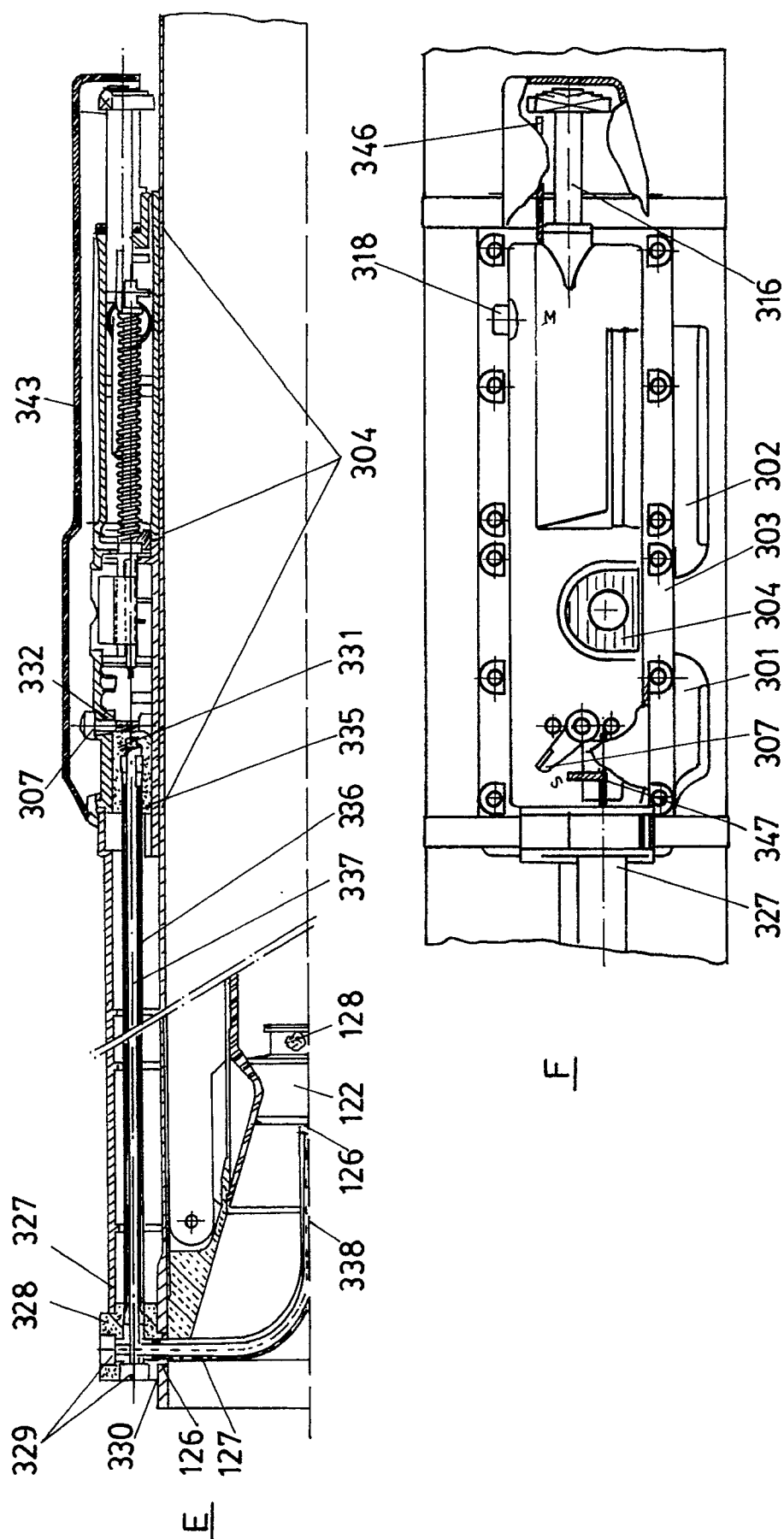


FIG. 7

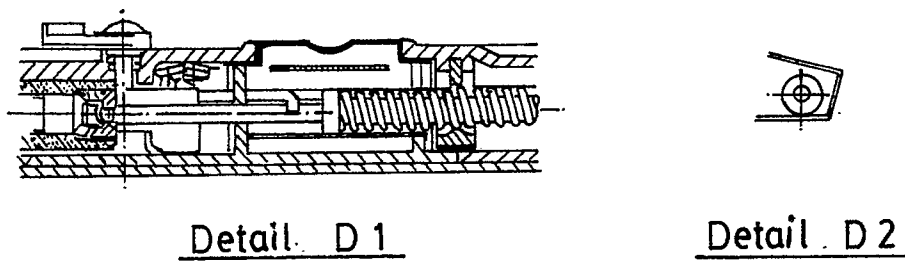
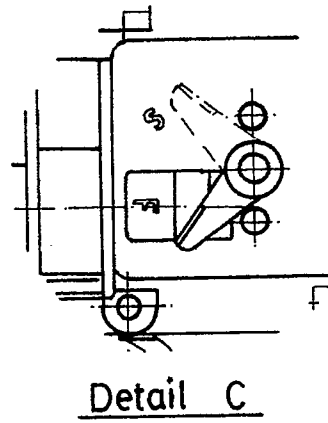
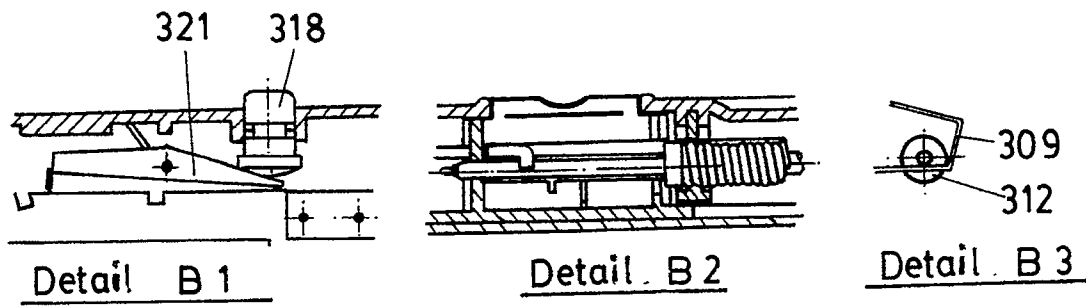


FIG. 7

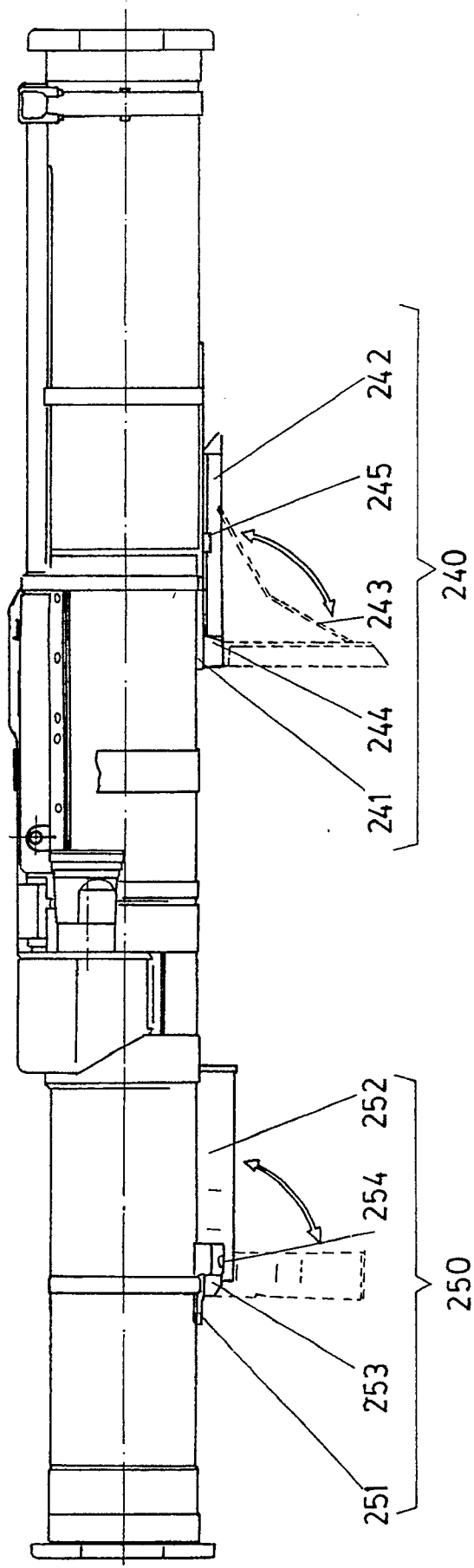


FIG. 8

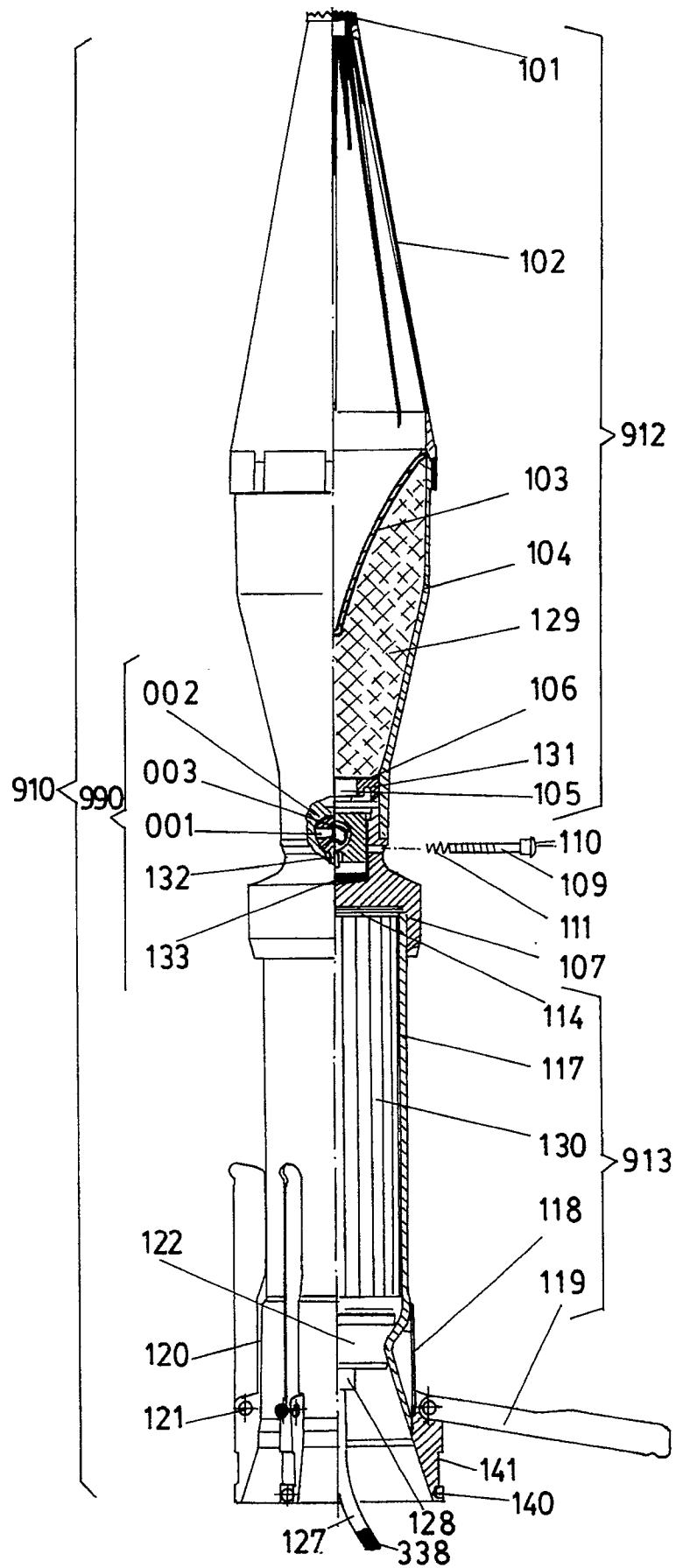


FIG. 9



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number

EP 90 50 0028

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                              |                                                |                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Citation of document with indication, where appropriate, of relevant passages                                                                                                                                                                                                                | Relevant to claim                              | CLASSIFICATION OF THE APPLICATION (Int. Cl.5)                                               |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | GB-A-2 086 013 (SOCIETE D'ETUDES, DE REALISATIONS ET D'APPLICATIONS TECHNIQUES)<br>* Page 1, lines 25-46,73-90; page 1, line 125 - page 2, line 48; figures 1-3 *                                                                                                                            | 1,2,6,7<br>,24,25,<br>29                       | F 41 F 3/045<br>F 41 F 3/052<br>F 41 G 1/38<br>F 41 A 19/39<br>F 41 F 3/077<br>F 41 A 35/06 |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ---                                                                                                                                                                                                                                                                                          | 3-5,26-<br>28                                  |                                                                                             |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | GB-A-1 206 945 (BRITISH AIRCRAFT)<br>* Page 1, lines 78-87; page 2, lines 30-68; figure 2 *                                                                                                                                                                                                  | 3                                              |                                                                                             |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | US-A-2 916 141 (ARNOT)<br>* Column 1, lines 35-52; column 3, lines 34-41; figure 4 *                                                                                                                                                                                                         | 4                                              |                                                                                             |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FR-E- 95 452 (SOC. TECHN. DE RECHERCHES INDUSTRIELLES)<br>* Page 2, line 38 - page 3, line 15; figure 1 *                                                                                                                                                                                    | 5                                              |                                                                                             |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | BE-A- 530 433 (SOMVILLE)<br>* Whole document *                                                                                                                                                                                                                                               | 26,28                                          |                                                                                             |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FR-A-1 328 459 (SOCIETE TECHNIQUE DE RECHERCHES INDUSTRIELLES)<br>* Page 2, right-hand column, paragraph 5 - page 3, left-hand column, paragraph 4; figures 1,2; page 3, left-hand column, paragraphs 8-11; page 3, right-hand column, paragraph 8 - page 4, left-hand column, paragraph 1 * | 27,28                                          |                                                                                             |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CH-A- 342 501 (AERO MECHANIKES)<br>* Page 2, lines 30-82; figure *<br>-/-                                                                                                                                                                                                                    | 28                                             |                                                                                             |
| <del>The present search report has been drawn up for all claims</del>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                              |                                                |                                                                                             |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                              | Date of completion of the search<br>30-05-1991 | Examiner<br>VAN DER PLAS J.M.                                                               |
| <p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                                                                                                                                                                                              |                                                |                                                                                             |

EPO FORM 1503 03.82 (P0401)



## CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid,  
namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

## X LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions,  
namely:

1. Claims 1,2-5,24: Container for a rocket used for storage and launching.
2. Claims 1,6,7,25-29: Locking of a rocket in his launcher and construction of this rocket.
3. Claims 1,8-10: Optical aiming device for a rocket launcher.
4. Claims 1,11-23: Firing and cocking mechanism for a rocket launcher.

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid,  
namely claims:      points 1. and 2.
- ☐ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims,  
namely claims:



| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                |                                                |                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Citation of document with indication, where appropriate, of relevant passages                                                                  | Relevant to claim                              | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | BE-A- 664 669 (UMAL)<br>* Page 1, last paragraph - page 2, paragraph 4; page 3, paragraph 8; page 5, claim 2; page 6, claim 9; figure *<br>--- | 1                                              |                                               |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FR-A-2 100 377 (SARMAC S.A.)<br>* Page 5, line 36 - page 6, line 19; figures 12,15-17 *<br>---                                                 | 6,7,25                                         |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EP-A-0 022 756 (FÖRENADE)<br>* Page 3, last paragraph - page 4, paragraph 2; figure *<br>---                                                   | 3                                              |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FR-A-1 436 333 (CONTRAVES)<br>* Whole document *<br>---                                                                                        | 3                                              |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DE-A-1 428 642 (OERLIKON-BÜHRLE AG)<br>* Page 5, paragraph 2 - page 7, paragraph 1; figures 1-2a *<br>---                                      | 6,7,25                                         |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FR-A- 499 103 (N. TAYLOR)<br>* Page 1, lines 1-44; figures 1-11 *<br>-----                                                                     | 26                                             | TECHNICAL FIELDS<br>SEARCHED (Int. Cl.5)      |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                |                                                |                                               |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                | Date of completion of the search<br>30-05-1991 | Examiner<br>VAN DER PLAS J.M.                 |
| <div>CATEGORY OF CITED DOCUMENTS</div> <div><div>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</div><div>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>.....<br/>&amp; : member of the same patent family, corresponding document</div></div> |                                                                                                                                                |                                                |                                               |