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(54) Electronically controlled fire-arm using liquid propellant

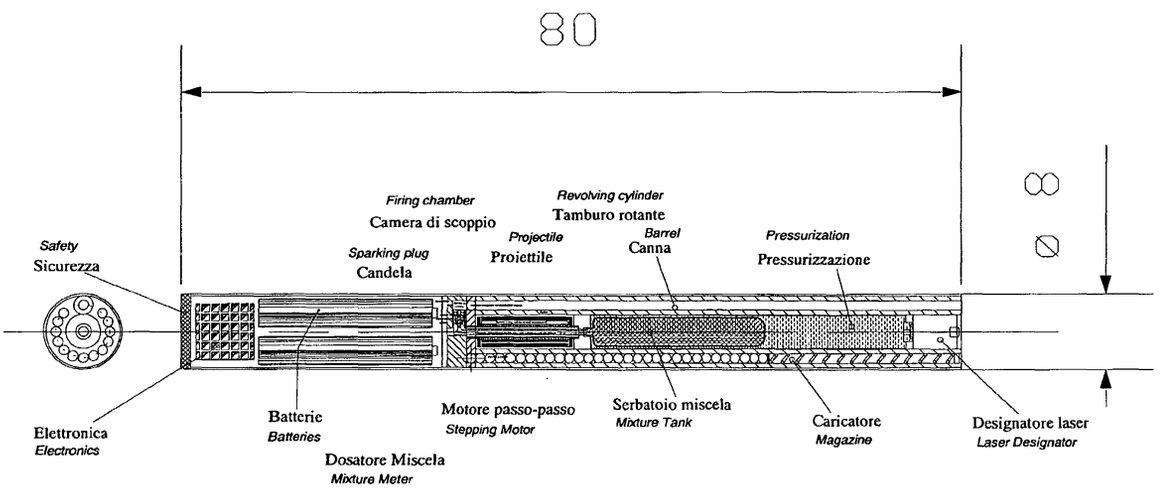
(57) Firearm similar to a rifle, of innovative conception. It uses projectiles without casings, and explosive liquid. The sequence of all the operations is governed electronically by a microprocessor, an electric motor turns the cylinder, a pressurised tank feeds the firing chamber and a sparking plug ignites the explosive.

The firearm is very simple, it does not require complex mechanical parts, it is completely sealed and after use it is not used again (disposable) in that the remaining parts are of very little value. It can be made very easily, but only by those who are knowledgeable in electronics.

It has sufficient firing autonomy and may be seen above all as a self-launching magazine.

Lay-out electronically controlled firearm

lay-out fucile a controllo elettronico



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Description

[0001] In particular, the project consists in the development of a new concept for a light weapon for assault troops. The idea is to take advantage of modern technology in electronics and to introduce the concept of "disposable" goods also for weapons. By reducing the components to the essential, the invention, subject of the present work has been achieved.

[0002] A cylindrical body made of High-Tech material (techno-polymer or Kevlar) houses all the necessary elements.

A) ***A series of cylindrical magazines*** placed peripherally, house the projectiles which are thrust forwards towards a revolving cylinder by a preloaded spring.

B) ***A revolving cylinder*** that is made up of either an aluminium ring or some other hard wearing material having the same number of chambers as the number of magazines. It is turned by a ***stepping motor,*** controlled by a ***CPU.*** The projectiles engage the first free chamber and by means of the revolving cylinder are lined up with the firing chamber.

C) ***A metering valve,*** with electromagnetic drive, controlled by a CPU which, on opening, allows the two liquid components of the explosive to flow out of the tank.

D) ***A tank,*** containing the two components, kept separate for safety reasons, of the explosive liquid mixture. ***A pressurised chamber*** containing inert gas to enable the mixture to flow into the firing chamber on opening of the valve.

E) ***A sparking plug,*** placed in the firing chamber, fed by high tension generated by the electronics on board and controlled by the: CPU, which causes the mix to explode

F) ***Batteries*** to power and ***the electronics on board*****,** which governs all the sequences of the operations and keeps all the parameters of the system under control (charge of the batteries, firing counter with warning that number of shots is getting low, pressurisation status of the tank)

G) The only traditional component, ***a barrel,*** to launch the projectile.

H) As an accessory, *a* ***laser designator*** is foreseen at the front for aiming.

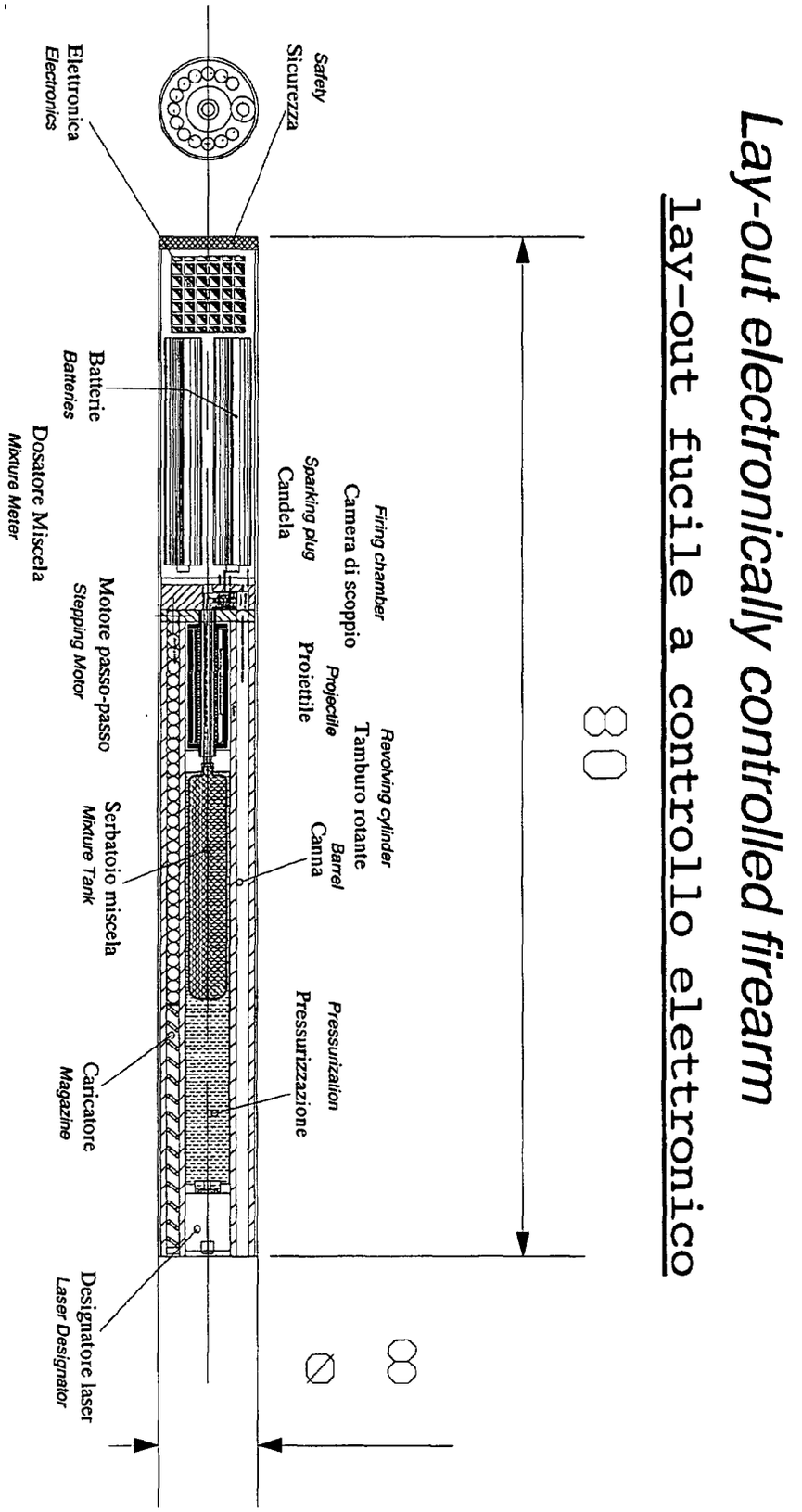
[0003] The firearm can be completely sealed to be water and dust proof during the loading phase. It can then be activated by turning the end section of the body, which acts as a safety device and which switches on the electronics. The command to fire (the ex trigger) is made up of a pair of touch sensors, placed on the sides of the grip and which must be activated together (for safety reasons).

[0004] The magazines hold even more than 100 shots which can be fired both one at a time or in bursts, depending on how the CPU has been programmed. The explosive mixture leaves no residue the very small amount of dirt remaining is not an obstacle in that once the shots have finished, the firearm is changed.

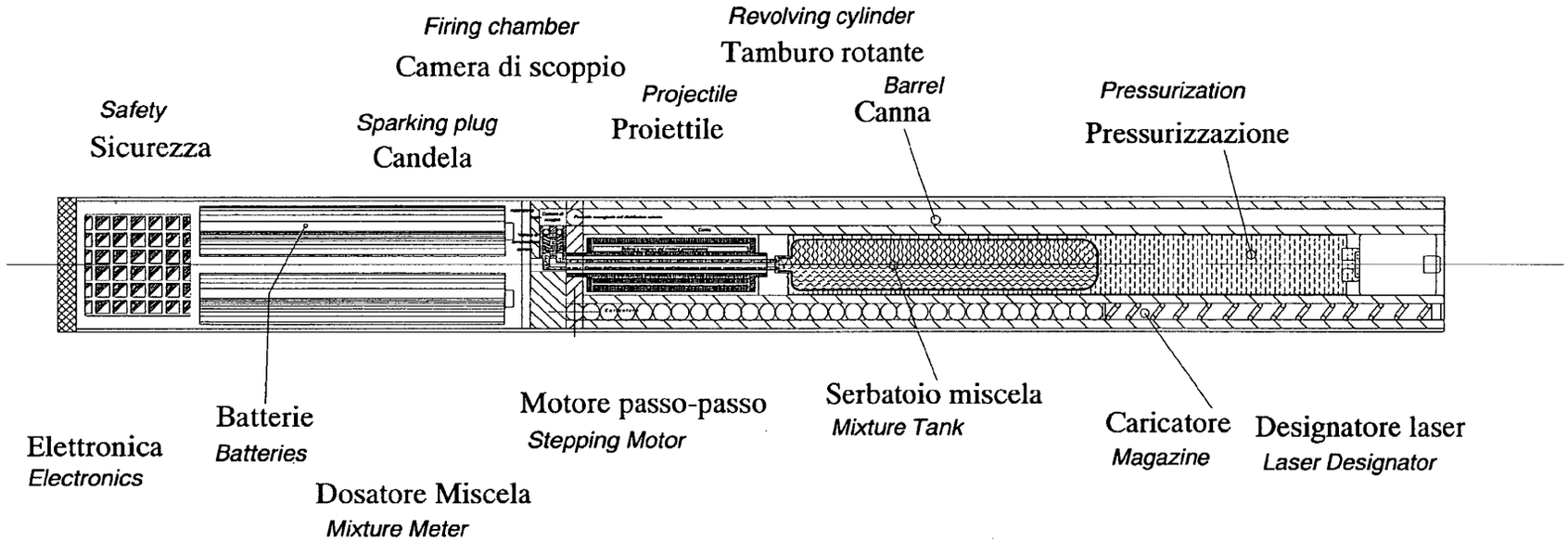
[0005] The sizes are very limited (70/80 cm $\times$ 10) and are just slightly more than a traditional magazine for a machine-gun.

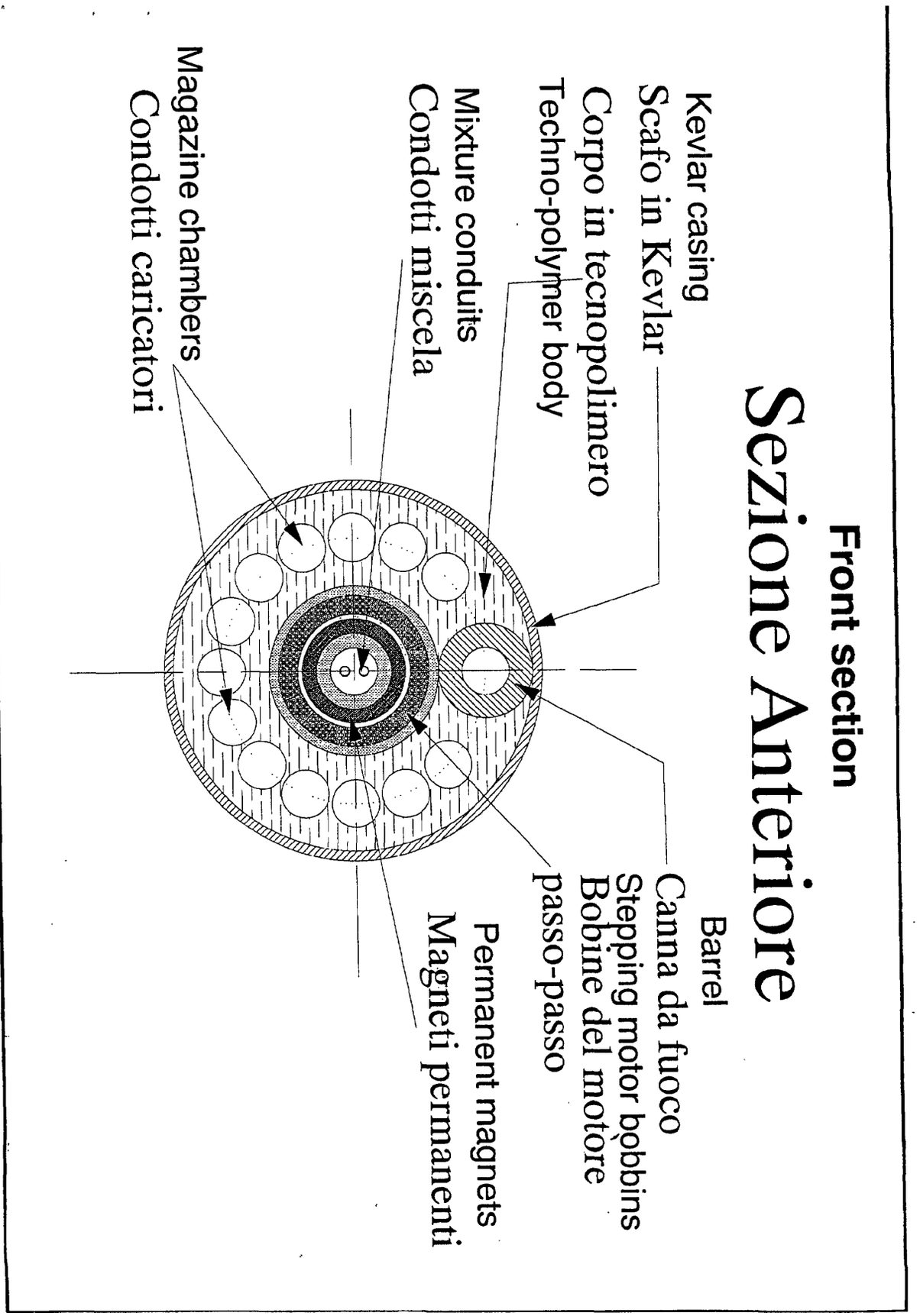
Claims

1. Firearm which uses projectiles without cases, powered by a liquid explosive.
2. As in 1., **characterised by** the use of an electric motor to turn the cylinder.
3. As in 2., **characterised by** the use of electronic control for the sequence of the firing operations.
4. As in 3., **characterised by** the use of a pressurised tank to feed the explosive.
5. As in 4., **characterised by** the use of an electromechanical metering valve to feed the firing chamber.
6. As in 5., **characterised by** the fact that the firearm itself is not re-usable after the first use (Disposable)

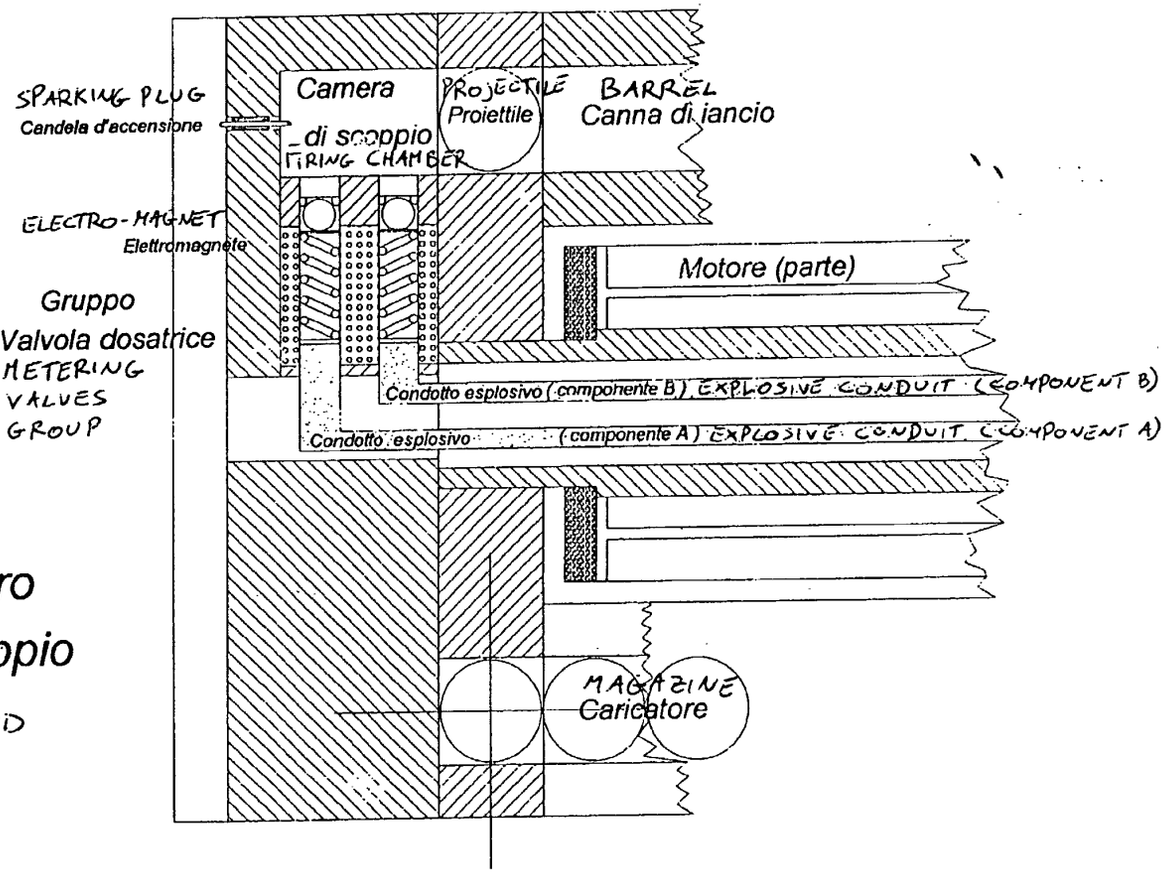

Lay-out electronically controlled firearm
lay-out fucile a controllo elettronico
Safety
Sicurezza
Elettronica
Electronics
Batterie
Batteries
Dosatore Miscela
Mixture Meter
Motore passo-passo
Stepping Motor
Serbatoio miscela
Mixture Tank
Caricatore
Magazine
Designatore laser
Laser Designator
Sparking plug
Candela
Firing chamber
Camera di scoppio
Projectile
Proiettile
Revolving cylinder
Tamburo rotante
Barrel
Canna
Pressurization
Pressurizzazione

Lay-out electronically controlled firearm



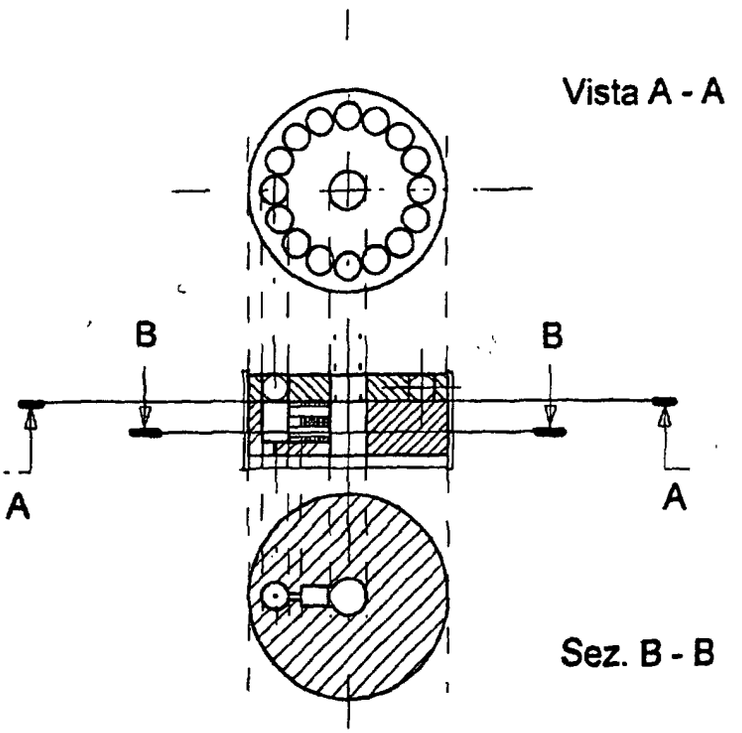

Front section
Sezione Anteriore
Kevlar casing
Scafo in Kevlar
Corpo in tecnopolimero
Techno-polymer body
Mixture conduits
Condotti miscela
Magazine chambers
Condotti caricatori
Barrel
Canna da fuoco
Stepping motor bobbins
Bobine del motore passo-passo
Permanent magnets
Magneti permanenti

REVOLVING CYLINDER
Tamburo rotante



Particolare del tamburo
e della camera di scoppio

VIEW OF CYLINDER AND
FIRING CHAMBER


Vista A - A
B
B
A
A
Sez. B - B