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54 **Smoke-producing projectile.**

57 The device has a cylindrical configuration inside of which there are situated in a correlative way three cylindrical parts containing the smoke material which show an axial and a central passage where an initiating strap for combustion is situated, strap which is located with its front end near and facing the corresponding initiating capsule which on its turn is installed on a hollow piece containing the fuse. The cylindrical body is completed with a cover where the location piece for the fuse is situated in a concentric way, and the mentioned cover as well as the fuse are perfectly protected with another shell cover which becomes independant when the device is thrown, and when combustion is produced the separate projecting of the three cylindrical parts is produced initiating at the same time the disintegration of the whole assembly.

**EP 0 369 922 A2**

## IMPROVEMENT OF SMOKE DEVICES AGAINST CIVIL DISORDERS

The present invention refers to the improvements of anti-disorder smoke devices.

The anti-disorders smoke devices, mostly known as "smoke pots", are actually made of metallic materials and are activated after being fired by the policemen corresponding arms, in such a way that said smoke pots, once they have fallen down, liberate gas in order to cause the escape of the group of persons it is meant to disperse. These smoke pots show quite a lot of difficulties at the time of their utilization, because they carry a huge quantity of kinetic energy and because in their combustion flames are produced, being sometimes the origin of regrettable accidents produced by a direct impact, fire or asphyxia, among the demonstrator mass as well as among the public order agents when said smoke pots are returned back by the demonstrators to them. And if to all this, we add that due to their type, the pots do not desintegrate, the high risk produced by the utilization of these devices in the circumstances and occasions already referred is evident.

The device, according to the present invention, may be fired from any firearm to which a suitable blunderbuss has been fitted, dividing itself into three or more fragments, each of them falls down exhaling a thick cloud of smoke at the same time that the exothermic chemical reaction which is produced, consumes each fragment, without hardly remaining wastes from them.

This model surpasses widely the other existing ones in the market, having the following advantages comparing with others: It desintegrates in two or three minutes without remaining metallic wastes.

The combustion is made without flames, avoiding then fire danger.

It does not have edges of any type, and so, it will not present any risk for the physical integrity of persons.

It produces three sources of smoke, so a much higher power of expansion can be reached, by tripling the neutralizable area.

Figure 1 shows a longitudinal section of the device, according to the present invention and essentially, we can see that it consists of a light metallic envelop (1), of cylindrical form.

This envelop has a stapled top (2), removable from the body if an inner pressure is made on it. On said top, there is the threaded piece (3) which bears the inertia fuze and the cap initiating (4) the device.

Inside the envelop, there are three cylinders (5), axially perforated the content of which is a fumigenic or lacrymating mixture, depending on the type of device it is about.

The cylinders envelop is made of low melting point metal.

Between the cylinders and the envelop top there is a separator (8) in charge of fixing the cylinders inside the envelop and of creating a low pressure chamber (15) which will be able to absorb the gases created by the combustion of the initiating strip (6), till that one fulfil its mission of initiating to the mixture of the three cylinders (5).

Along the axial perforations of the cylinders and extending till the initiating cap (4) contained into the piece bearing the fuze (3), there is the rigid initiating strip (6) covered with a pyrotechnical mixture of easy initiation and able to create in its combustion the thermic power necessary for initiating to the fumigenic or lacrymating pressure of the three cylinders.

The device is completed with a top of plastic material (7), threaded to the piece bearing the fuze (3) and fitted in its lower part to the device body, the aim of which is to protect the fuze.

In its lower part, it has a rubber disk (9) which protects the device during the transport and at the moment of firing it. Together with it, there is a metallic disk (10) which avoids the device perforation by the flame tongue and gases produced by the firing arm at the moment of firing. This set of two disks is joined to the lower part of the device by means of a plastic piece (11) in which the metallic envelop (1) enters by tightening it.

The device operates as hereafter described:

It is inserted, with the protecting top of the fuze forwards, into the blunderbuss of the arm which will be used for its firing and when it is discharged and the device goes forwards, the firing pin of the fuze (12) impelled by the inertial force caused by the acceleration introduced into the device, breaks the transfer interrupter (13) and the reactive spring action (14), falling upon the initiating cap (4), producing its combustion a flare-up which sets fire at the initiating strip (6). This strip combustion is not instantaneous due to the requirements, regarding the thermic characteristics and the absence of mechanic wave, which are necessary in it to be able to initiate to the mixture of cylinders contained by the device.

As at the same time, in said combustion gases are given off, the low pressure chamber (15) created by the separator (8) in the upper part of the device, is necessary.

But also, all these characteristics in the combustion and the existence of this low pressure chamber cause a delay which is necessary for a good operation of the device which, only when it is at a minimum distance of twenty meters from the

launching agent, reaches the necessary pressure to open the envelop top and, so, to throw duly the three cylinders, already initiated, forwards being kept in them a scope equivalent to the scope that would have the complete device.

Said cylinders fall already initiated, emitting a fire tongue and a thick cloud of smoke through each hole of the bases. On increasing the reaction and on ending the emission of smokes, the cylinder has disappeared leaving only a small waste where it fell.

On the other side, the effect of tripling the device and the impossibility of picking up some of the cylinders, even with protective gloves, prevents from their return and creates a great confusion among the persons on which it has been fired.

After describing sufficiently the scope of the invention, it is implicit that it does not remain limited to the way of performance already described and represented, but it includes as many variants as wished in the fulfilment of its different elements. The applicant reserves his right to extend this petition to foreign countries, claiming for the same priority of the present appliance, under the protection of the International Agreement for Industrial Property Protection.

**Claims**

1. IMPROVEMENTS OF ANTI-DISORDER SMOKE DEVICES, characterized by containing three or more independent cylinders, containing fumigenic or lacrymating mixture each one, that at the moment of firing them, disperse in the air by emitting each of them a thick cloud of smoke with a dissuasive effect for the persons on which it has been fired.

2. IMPROVEMENTS OF ANTI-DISORDER SMOKE DEVICES, characterized by having a pressure chamber, able to absorb the gases produced in the initiating reaction and cause a delay in the envelop opening and in the smoke cylinder dispersion, which allow the cylinder to be further on the safe distance of the thrower, when it happens.

3. IMPROVEMENTS OF ANTI-DISORDER SMOKE DEVICES, characterized by having an inertia initiating fuze, which makes totally unnecessary its handling before the throwing.

4. IMPROVEMENTS OF ANTI-DISORDER SMOKE DEVICES, characterized by disposing of a rigid initiating strip placed in axial position in relation to the smoke cylinders.

5. IMPROVEMENTS OF ANTI-DISORDER SMOKE DEVICES, characterized by containing three or more cylinders of smoke mixture axially perforated and with a low pressure point metallic envelop, so that, when the reation which causes the

smoke cloud is being produced, there are no solid wastes of said cylinders.

6. IMPROVEMENTS OF ANTI-DISORDER SMOKE DEVICES, according to the above claims, characterized by the protection given at the device base by a rubber disk and a steel disk.

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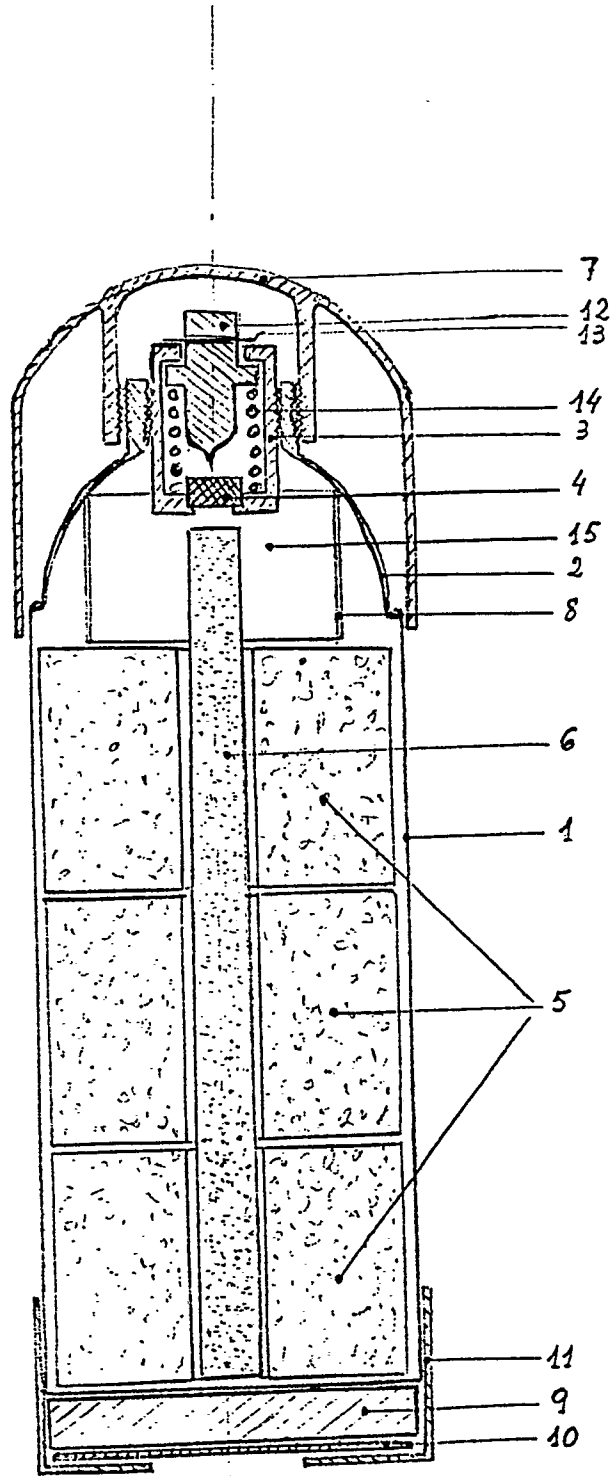


Fig. 1