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(12) # EUROPEAN PATENT APPLICATION

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(54) **Instantaneous opening parachute containing device for illuminating mortar bombs.**

(57) An instantaneous opening parachute containing device for illuminating mortar bombs comprises two or more cheeks (6,7) consisting of cylindrical segments which abut, by means of their outer surface, the shell (2) of the bomb and by means of the inner surface, the folded and packed parachute (5).

A leaf spring (12) disposed in a preloaded condition in a seat (11) provided in the cheeks (6,7) stretches out after the ejection of the illuminating canister (3) from the bomb and draws mutually the cheeks (6,7) away.

In order to enhance the drawing away effect, the cheeks (6,7) can be provided with holes (13) and bear a sheet (14) applied thereto consisting of a plastic or cloth film.

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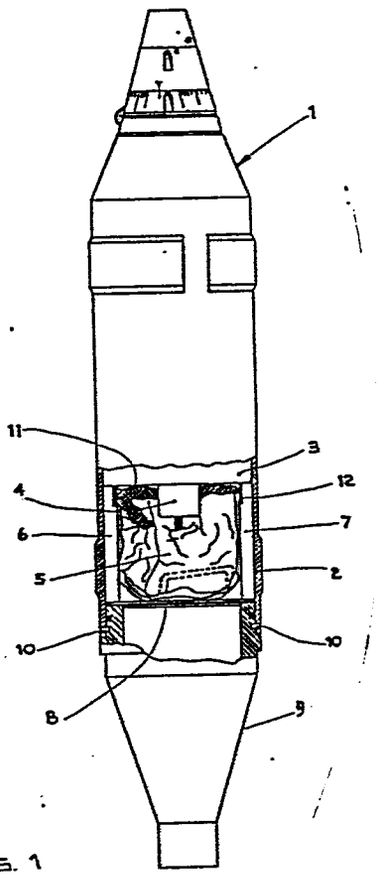

FIG. 1

Instantaneous opening parachute containing device for illuminating mortar bombs.

The present invention relates to instantaneous opening parachute containing devices for illuminating mortar bombs.

It is known that mortar shots are fired by smoothbore barrels which do not cause any spin effect. As a result, it is impossible to utilize centrifugal forces for separating parts intended to be mutually drawn away in the specific case of illuminating shots.

The operation which particularly requires this separation is the opening of the parachute which is indispensable for providing a controlled speed fall.

Generally the parachute containing function is performed by the use of two or more cylindrical segments referred to as cheeks which are so dimensioned as to abut, by means of their outer surface, the inner surface of the bomb and, by means of their inner surface, the suitably folded and subsequently packed parachute.

At the present state of the art, the effect of drawing away the cheeks was assigned to the steel conus supporting

the parachute. This involved considerable assembly difficulties and in addition limited the cable size and therefore its strength.

More particularly the parachute containing device according to the invention, of the type consisting of two or more cheeks formed by cylindrical segments abutting, by means of their outer surfaces, the bomb shell and, by means of their inner surface, the folded and packed parachute, is characterized in that it comprises a leaf spring disposed, in a preloaded condition, in a seat provided in the cheeks, said spring being intended to stretch out after the ejection of the illuminating canister from the bomb and to draw the cheeks mutually away.

According to a feature of the present invention, in order to increase the resisting surface, the cheeks have a number of holes and bear a sheet of plastic material or cloth applied thereto which is intended to stretch out at the separation of the device.

The invention will be better understood from the following description, given merely as an example and therefore in no limiting sense, of an embodiment thereof, referring to the accompanying drawings in which:

Fig. 1 shows an elevational view of an illuminating bomb with the parachute containing device according to the invention shown in cross section;

Fig. 2 is a plan view of the spring and the cheeks at the opening of the device; and

Fig. 3 is a perspective view of a cheek after its ejection from the bomb.

Referring first to Fig. 1 it is seen that the illuminating bomb 1 carries inside a shell 2, an illuminating canister 3, shown only fragmentarily, hooked at 4 to a parachute 5 which is folded and packed within a defined space as will be explained hereinafter. Disposed between the shell 2 of the bomb and the parachute 5 are two cheeks 6,7 which are obtained by sectioning a cylinder along two generating lines and abut by means of their front faces, on the one side the illuminating canister and on the opposite side a wall 8 interposed between the cheeks and a base plug 9 connected to the shell 2 of the bomb by means of shear pins 10. It is therefore seen that the space within which the parachute 5 is contained is defined on the two opposite front sides by the illuminating canister 3 .. and the wall 8 and on the cylindrical side by the inner walls of the cheeks 6,7. The thickness of the cheeks is thinner at the end on the side of the illuminating canister to provide a depression 11 forming the seat for a leaf spring 12 inserted in said seat in a preloaded condition.

The described parachute containing device operates as follows:

When the illuminant bomb is fired, at a predetermined time the illuminant canister ejecting charge, not shown, ejects from the shell 2, after breakage of the shear pins 10 with a resulting drawing away of the base plug 9, the assembly comprising the illuminating canister 3 and the parachute containing device.

As soon as the parachute containing device has been ejected from the shell 2 the preloaded leaf spring 12 stretches out and causes a mutual drawing away of the cheeks 6,7 as shown in Fig. 2. The condition of maximum stretching out of the spring assures a sufficient drawing away of the cheeks for preventing that they fall on the parachute when the latter is opening.

The drawing away effect can be enhanced by providing the cheeks with holes 13 and applying to them a sheet 14 of suitable material which can stretch out when the device is separated because of the air intercepted by the holes thus increasing the resistant surface and decreasing as a result the fall speed. As materials for the sheet 14 there can be taken into consideration plastic films, such as polyesters, polyamides or polyolefines, or cloths, f.e. cotton or nylon cloths.

In this manner there is reduced the danger of collision between the cheek and the canopy of the parachute while the latter is opening.

While but one embodiment of the invention has been illustrated and described, it is obvious that a number of changes and modifications can be made without departing from the scope of the invention.

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Claims

1. Instantaneous opening parachute containing device for illuminating mortar bombs, of the type consisting of two or more cheeks formed by cylindrical segments abutting, by means of their outer surface, the bomb shell and, by means of their inner surface, the folded and packed parachute, characterized in that it comprises a leaf spring (12) disposed, in a preloaded condition, in a seat (18) provided in the cheeks (6,7), said spring (12) being intended to stretch out after the ejection of the illuminating canister (3) from the bomb and to draw the cheeks (6,7) mutually away.

2. Device as claimed in claim 1, characterized in that the cheeks (6,7) are provided with holes (13) and carry a stretchable sheet (14) applied thereto.

3. Device as claimed in claim 2, characterized in that the sheet consists of a plastic film.

4. Device as claimed in claim 2, characterized in that the sheet consists of a cloth.

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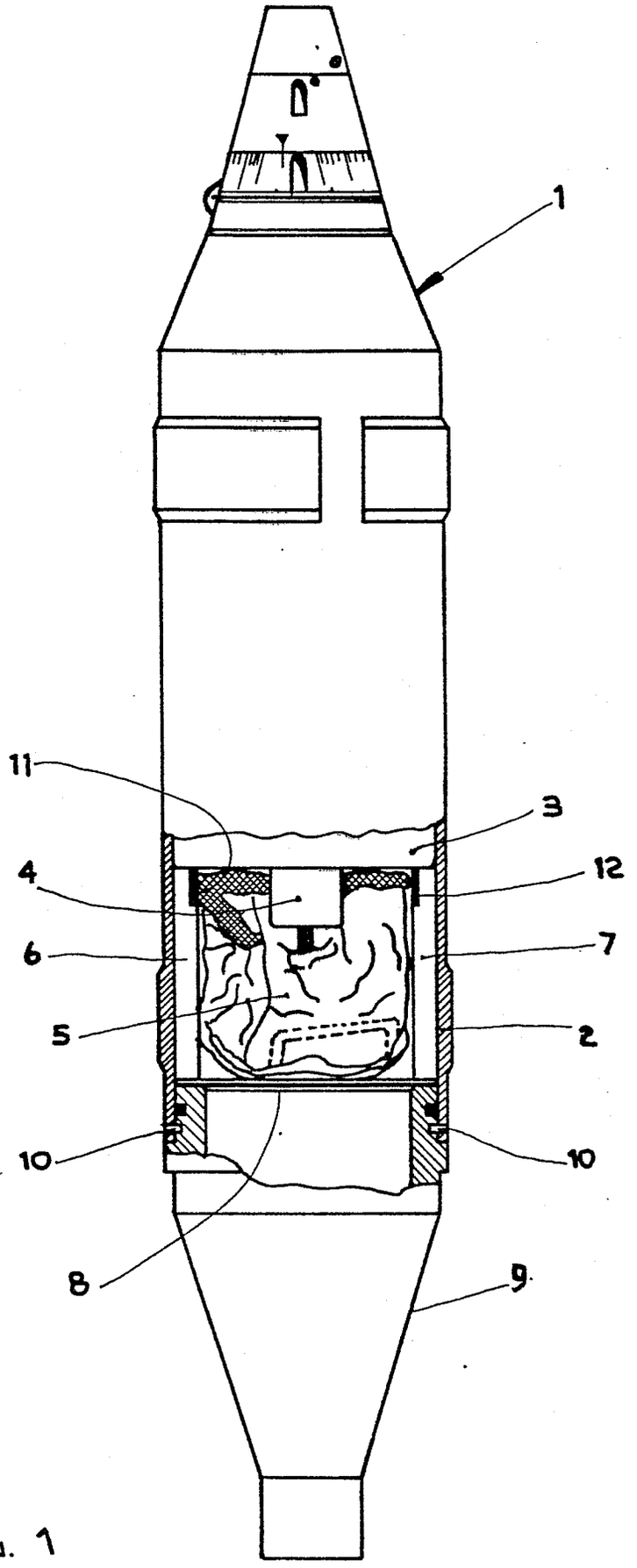

FIG. 1

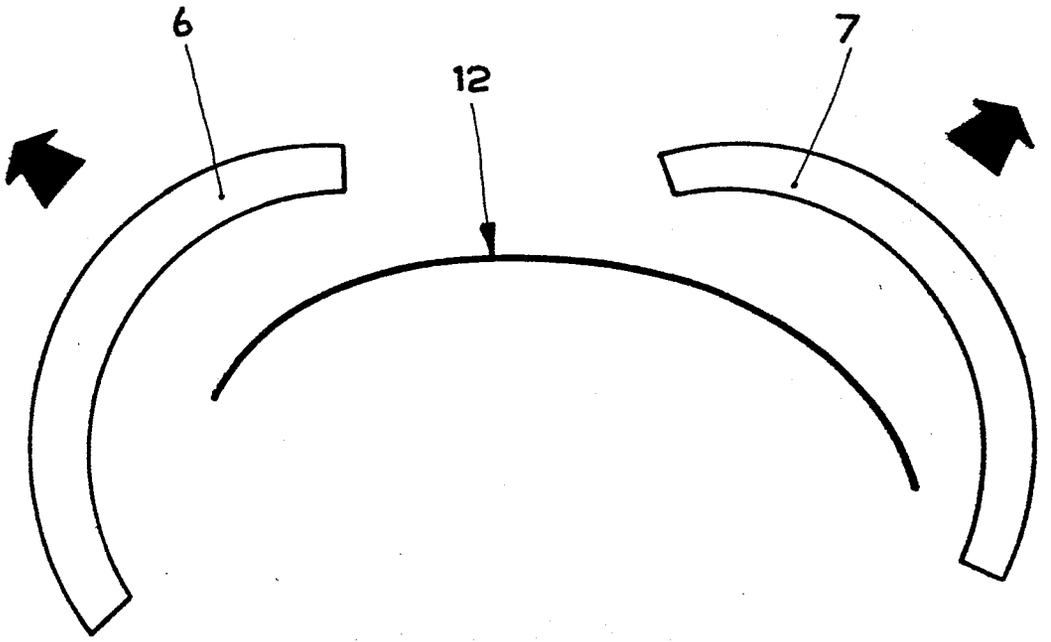

FIG. 2

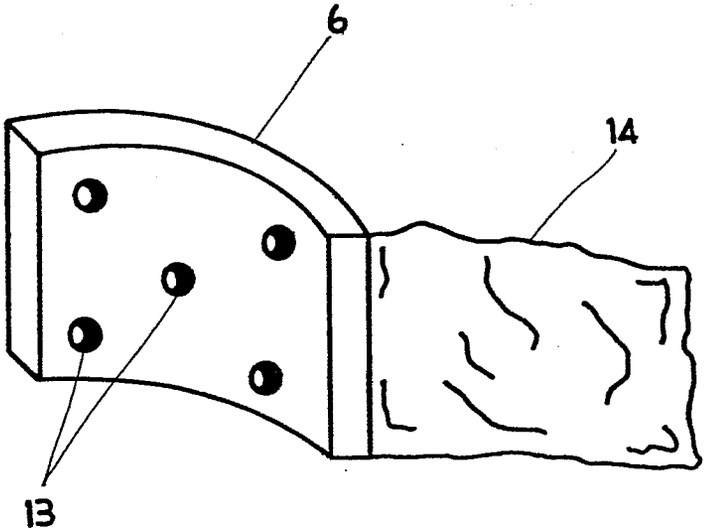

FIG. 3

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EUROPEAN SEARCH REPORT

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Application number

EP 83830263.6

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. ³)
A	DE - B - 1 578 141 (FÖRSVARETS FABRIKSVERK) * Column 2, lines 26-43; fig. 1 * --	1	F 42 B 13/38
A	CH - A - 216 981 (SOCIETE HOLDING GENERALE DE BREVETS SOBRE) * Page 3, column 1, lines 14-44; fig. 4,5 * --	1	
A	FR - A - 1 565 378 (SOCIETE TECHNIQUE DE RECHERCHES INDUSTRIELLES ET MECANIQUES) * Fig. 21,23,24 * ----	2	

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

F 42 B 13/00
F 42 B 25/00
G 01 W 1/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	17-05-1984	KALANDRA

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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