

## Title (en)

Pyrotechnic delay element, method of manufacture and its use

## Title (de)

Pyrotechnisches Verzögerungselement, Verfahren zu seiner Herstellung sowie dessen Verwendung

## Title (fr)

Retard pyrotechnique, son procédé de fabrication et son utilisation

## Publication

**EP 0847972 A1 19980617 (DE)**

## Application

**EP 96203536 A 19961213**

## Priority

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## Abstract (en)

A pyrotechnic retarding device (1) consists of aggregates (3,4,5) pressed one on top of the other and arranged in a metal casing (2). The transition zones between each two adjacent aggregates are formed by solid phases (34,45) containing components of both aggregates compressed and interleaved with one another. Also claimed are (i) a method of manufacturing such a delay device by first packing the triggering aggregate into the case, secondly packing a divided portion of the delay aggregate and thirdly pressing both layers together with a pressure ram. In a fourth step further divided portions are packed into the case each divided portion being pressed with the pressure ram before the next. In a fifth step the last divided portion of the delay aggregate is pressed with the following propagation aggregate and (ii) the use of such elements in ignition devices with predetermined time delays in a Nebel rocket launcher.

## Abstract (de)

Ein umweltfreundliches pyrotechnisches Verzögerungselement (1), besteht aus aufeinander gepressten Sätzen (3,4,5), welche in einer metallischen Hülse (2) angeordnet sind. Jeweils benachbarte Bereiche der Sätze (3,4,5) bilden mit einander verzahnte Übergänge (34; 45). Die Sätze des Elements enthalten vorwiegend Schwarzpulver und weisen auch nach der Zündung wenig Schadstoffe auf. Das Herstellungsverfahren besteht aus portionenweisem Pressen der Sätze im Innern der metallischen Hülse (2). Eine bevorzugte Anwendung des Erfindungsgegenstandes ist das Anzünden von an sich bekannter Nebelmunition. <IMAGE>

## IPC 1-7

**C06C 5/06**; **C06B 21/00**; **F42B 3/16**

## IPC 8 full level

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## CPC (source: EP)

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## Citation (applicant)

- EP 0304973 A1 19890301 - EIDGENOESS MUNITIONSFAB THUN [CH]
- EP 0322951 B1 19930303 - EIDGENOESS MUNITIONSFAB THUN [CH]
- EP 0362523 B1 19931020 - NICO PYROTECHNIK [DE]

## Citation (search report)

- [XY] EP 0036810 A1 19810930 - FRANCE ETAT [FR]
- [A] US 2373799 A 19450417 - WILSON FRANK C
- [A] EP 0491530 A2 19920624 - ISRAEL MILITARY IND [IL]
- [Y] FR 2015074 A1 19700424 - DYNAMIT NOBEL AG
- [Y] FR 1400588 A 19650528
- [A] GB 2253207 A 19920902 - ICI PLC [GB]
- [A] US 3110638 A 19631112 - MURPHY MAURICE F, et al
- [A] FR 931695 A 19480301 - ICI LTD
- [A] FR 1128524 A 19570107 - ICI LTD
- [A] US 4858529 A 19890822 - LIEBERMAN MORTON L [US]

## Cited by

EP1253397A3; US6761118B2; WO2016075091A1; DE102015014821A1; WO2017084916A2; US10889530B2

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