

**CPC****COOPERATIVE PATENT CLASSIFICATION****F42D**

**BLASTING** (fuses, e.g. fuse cords, [C06C 5/00](#); {for obtaining fluid from wells [E21B 43/00](#); for mining or quarrying [E21C 37/00](#); for making tunnels or galleries [E21D 9/006](#)} ; cartridges [F42B 3/00](#))

**F42D 1/00****Blasting methods or apparatus, e.g. loading or tamping**

- F42D 1/02
  - Arranging blasting cartridges to form an assembly (adaptation of blasting cartridges therefor [F42B 3/02](#))
- F42D 1/04
  - Arrangements for ignition ({[ignition systems for shaped charge perforators E21B 43/1185](#); [ignition devices for seismic energy generators G01V 1/06](#)})
- F42D 1/041
  - • {[Tools for adapting cartridges for the mounting of detonators \(Cartridges specially adapted for the mounting of detonators \[F42B 3/26\]\(#\)\)](#)}
- F42D 1/042
  - • {[Logic explosive circuits, e.g. with explosive diodes](#)}
- F42D 1/043
  - • {[Connectors for detonating cords and ignition tubes, e.g. Nonel tubes \(mounting of detonators in blasting cartridges \[F42B 3/26\]\(#\)\)](#)}
- F42D 1/045
  - • Arrangements for electric ignition ([dynamo-electric generators H02K](#))
- F42D 1/05
  - • • Electric circuits for blasting
- F42D 1/055
  - • • specially adapted for firing multiple charges with a time delay
- F42D 1/06
  - • Relative timing of multiple charges ({[F42D 1/043](#) and } [F42D 1/055](#) take precedence)
- F42D 1/08
  - Tamping methods; Methods for loading boreholes with explosives; Apparatus therefor
- F42D 1/10
  - • Feeding explosives in granular or slurry form; Feeding explosives by pneumatic or hydraulic pressure
- F42D 1/12
  - • Feeding tamping material by pneumatic or hydraulic pressure
- F42D 1/14
  - • Hand-operated tamping or loading
- F42D 1/16
  - • • Tamping tools
- F42D 1/18
  - • Plugs for boreholes
- F42D 1/20
  - • Tamping cartridges, i.e. cartridges containing tamping material ([flexible or deformable blasting cartridges \[F42B 3/087\]\(#\)](#))
- F42D 1/22
  - • Methods for holding or positioning for blasting cartridges or tamping cartridges
- F42D 1/24
  - • characterised by the tamping material
- F42D 1/26
  - • • Tamping with foaming agents
- F42D 1/28
  - • • Tamping with gelling agents

**F42D 3/00**

**Particular applications of blasting techniques** ({[explosive welding B23K 20/08](#); [explosive bolts or actuators \[F42B 3/006\]\(#\)](#); [explosive valves \[F16K 13/06\]\(#\)](#); [cutting devices actuated by explosion \[B23D 15/145\]\(#\)](#); [pyrotechnical actuators \[F15B 15/19\]\(#\)](#); [switching devices actuated by explosion \[H01H 39/00\]\(#\)](#)})

- F42D 3/02
  - for demolition of tall structures, e.g. chimney stacks
- F42D 3/04
  - for rock blasting
- F42D 3/06
  - for seismic purposes

**F42D 5/00****Safety arrangements**

F42D 5/02

- Locating undetonated charges

F42D 5/04

- Rendering explosive charges harmless, e.g. destroying ammunition ([F42B 39/14](#) and [F42B 39/20](#) take precedence } ; extracting primers, dismantling ammunition [F42B 33/04](#), [F42B 33/06](#); {chemical deactivating of explosives [C06B 21/0091](#)}); Rendering detonation of explosive charges harmless

F42D 5/045

- . Detonation-wave absorbing or damping means

F42D 5/05

- . . Blasting mats

F42D 5/055

- . Silencing means for blasting operations

F42D 5/06

- Unloading boreholes

**F42D 99/00****Subject matter not provided for in other groups in this subclass**