

**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**