

# CPC COOPERATIVE PATENT CLASSIFICATION

## F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

### WEAPONS; BLASTING

#### F42 AMMUNITION; BLASTING (NOTES omitted)

#### 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](#))

##### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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

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

#### **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](#))}
- 3/02 . for demolition of tall structures, e.g. chimney stacks
- 3/04 . for rock blasting
- 3/06 . for seismic purposes

#### **5/00 Safety arrangements**

- 5/02 . Locating undetonated charges
- 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
- 5/045 . . Detonation-wave absorbing or damping means
- 5/05 . . . Blasting mats
- 5/055 . . Silencing means for blasting operations
- 5/06 . Unloading boreholes

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