

E21 EARTH OR ROCK DRILLING; MINING**E21F SAFETY DEVICES, TRANSPORT, FILLING-UP, RESCUE, VENTILATION, OR DRAINAGE IN OR OF MINES OR TUNNELS [2]**

VENTILATION 1/00, 3/00
 DRAINAGE 16/00
 SAFETY DEVICES, RESCUE DEVICES 5/00 11/00

TRANSPORT; FILLING-UP 13/00; 15/00
 OTHER METHODS OR DEVICES 17/00

Ventilation of mines or tunnels

- 1/00 Ventilation of mines or tunnels; Distribution of ventilating currents** (ventilating rooms or spaces in general F24F) [2]
- 1/02 . Test models (analogue computers therefor G06G 7/50)
 - 1/04 . Air ducts (suspension devices E21F 17/02)
 - 1/06 . . Duct connections (tube connections in general F16L)
 - 1/08 . Ventilation arrangements in connection with air ducts, e.g. arrangements for mounting ventilators (ventilators *per se* F04D)
 - 1/10 . Air doors (doors in general E06B)
 - 1/12 . . Devices for automatically opening air doors
 - 1/14 . Air partitions; Air locks (dams E21F 17/103; air locks for foundations E02D) [6]
 - 1/16 . Shaft covers
 - 1/18 . Gravity-flow ventilation (E21F 1/02 E21F 1/16 take precedence) [2]
- 3/00 Cooling or drying of air** (air-conditioning rooms or spaces in general F24F)

Safety devices (flue-gas indicators G01N); **Rescue devices**

- 5/00 Means or methods for preventing, binding, depositing, or removing dust; Preventing explosions or fires** (dams E21F 17/103; applying liquids or other fluent materials to surfaces in general B05) [6]
- 5/02 . by wetting or spraying
 - 5/04 . . Spraying barriers (spray nipples, spraying in general B05B, B05D; picks with arrangement of fluid-spraying nozzles E21C 35/187)
 - 5/06 . . Fluids used for spraying
 - 5/08 . Rock dusting; Depositing other protective substances
 - 5/10 . . Devices for rock dusting
 - 5/12 . . Composition of rock dust
 - 5/14 . Fluid barriers or rock dusters made to work by, or at the same time as, shots or explosions
 - 5/16 . Layers of hygroscopic or other salts deposited on floors, walls, or the like, for binding dust; Deposition of such layers (dust-absorbing materials in general C09K 3/22)
 - 5/18 . Impregnating walls, or the like, with liquids for binding dust
 - 5/20 . Drawing-off or depositing dust (methods or apparatus for flushing boreholes E21B 21/00; while slitting E21C 35/22) [1,7]
- 7/00 Methods or devices for drawing-off gases with or without subsequent use of the gas for any purpose**

- 9/00 Devices preventing sparking of machines or apparatus** (preventing sparking of electric machines or apparatus H01K, H02K)

- 11/00 Rescue devices or other safety devices, e.g. safety chambers, escape ways** (breathing aids for curative purposes A61H 31/00; respiratory apparatus A62B 7/00; revival apparatus A62B 33/00)

- 13/00 Transport specially adapted to underground conditions** (mine cars B61D; transport in general, loading B65G)

- 13/02 . in galleries
- 13/04 . in gravity inclines; in staple or inclined shafts
- 13/06 . at or adjacent to the working face
- 13/08 . Shifting conveyers or other transport devices from one location at the working face to another (guiding mining machines along conveyers for the cut mineral E21C 35/12; in combination with mine roof supports for step-by-step movement E21D 23/00)
- 13/10 . Anchorings for conveyers [2]

- 15/00 Methods or devices for placing filling-up materials in underground workings** (dams E21F 17/103) [6]

- 15/02 . Supporting means, e.g. shuttering, for filling-up materials
- 15/04 . . Stowing mats; Goaf wire netting; Partition walls
- 15/06 . Filling-up mechanically
- 15/08 . Filling-up hydraulically or pneumatically (hydraulic or pneumatic transport devices B65G; pipes, pipe couplings F16L)
- 15/10 . . Hydraulic or pneumatic filling-up machines

- 16/00 Drainage** (keeping dry foundation sites or other areas in the ground E02D 19/00) [2]

- 16/02 . of tunnels [2]

- 17/00 Methods or devices for use in mines or tunnels, not covered elsewhere** (mine lighting F21, H05B) [2]

- 17/02 . Suspension devices for tubes or the like, e.g. for ventilating ducts (supporting pipes, cables or protective tubing in general F16L 3/00 F16L 7/00)
- 17/04 . Distributing means for power supply [2]
- 17/06 . . Distributing electric power; Cable networks; Conduits for cables (circuit arrangements for supplying or distributing electric power in general H02J)
- 17/08 . . Distributing hydraulic power; Pipe networks for hydraulic liquid (pipe-line systems in general F17D)
- 17/10 . . Distributing pneumatic power; Pipe networks for compressed air (pipe-line systems in general F17D)
- 17/103 . Dams, e.g. for ventilation [6]

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- 17/107 . . inflatable **[6]**
- 17/12 . . Dam doors
- 17/16 . Modification of mine passages or chambers for storage purposes, especially for liquids or gases (storing fluids in natural or artificial cavities or chambers in the earth B65G 5/00)
- 17/18 . Special adaptations of signalling or alarm devices (for elevators, escalators or moving walkways B66B; gas-sensitive devices per se G01N)