

# CPC COOPERATIVE PATENT CLASSIFICATION

## E FIXED CONSTRUCTIONS

### EARTH DRILLING; MINING

#### E21 EARTH DRILLING; MINING

#### E21F SAFETY DEVICES, TRANSPORT, FILLING-UP, RESCUE, VENTILATION, OR DRAINING IN OR OF MINES OR TUNNELS

##### Ventilation of mines or tunnels

		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
		5/143	. . {Fluid barriers}
		5/146	. . {Rock dusters}
		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 <a href="#">C09K 3/22</a> )
		5/18	. Impregnating walls, or the like, with liquids for binding dust {(injections for improving soil or rock <a href="#">E21D 9/001</a> ; borehole closures, i.e. packers, for use during the injection process <a href="#">E21B 33/12</a> )}
		5/20	. Drawing-off or depositing dust (dust-removing while drilling <a href="#">E21C 7/00</a> ; while slitting <a href="#">E21C 35/22</a> )
		<b>7/00</b>	<b>Methods or devices for drawing- off gases with or without subsequent use of the gas for any purpose</b>
		<b>9/00</b>	<b>Devices preventing sparking of machines or apparatus (preventing sparking of electric machines or apparatus <a href="#">H01K</a>, <a href="#">H02K</a>)</b>
		<b>11/00</b>	<b>Rescue devices or other safety devices, e.g. safety chambers, escape ways (respiratory apparatus <a href="#">A62B 7/00</a>; revival apparatus <a href="#">A62B 33/00</a>; breathing aids for curative purposes <a href="#">A61H 31/00</a>)</b>
		<b>13/00</b>	<b>Transport specially adapted to underground conditions (mine cars <a href="#">B61D</a>; transport in general, loading {unless specially adapted to underground conditions} <a href="#">B65G</a>)</b>
		13/002	. {Crushing devices specifically for conveying in mines}
		13/004	. {Staff transport system}
		13/006	. {Equipment transport systems}
		13/008	. . {for mine roof support units for step-by-step movement}
		13/02	. {Transport of mined mineral} in galleries
		13/025	. . {Shuttle cars}
		13/04	. {Transport of mined material} in gravity inclines; in staple or inclined shafts
		13/042	. . {Vertical hydraulic conveying of coal (conveying by water flow in general <a href="#">B65G 53/00</a> )}
		13/045	. . {Bunkers specially adapted for mining purposes (chutes in general <a href="#">B65G 11/00</a> )}
		13/047	. . {comprising helically running channels (chutes of helical form in general <a href="#">B65G 11/06</a> )}
<b>1/00</b>	<b>Ventilation of mines or tunnels; Distribution of ventilating currents (ventilating rooms or spaces in general <a href="#">F24F</a>)</b>		
1/003	. {Ventilation of traffic tunnels (during construction <a href="#">E21F 1/04</a> - <a href="#">E21F 3/00</a> )}		
1/006	. {Ventilation at the working face of galleries or tunnels}		
1/02	. Test models (analogue computers therefor <a href="#">G06G 7/50</a> )		
1/04	. Air ducts (suspension devices <a href="#">E21F 17/02</a> )		
1/06	. . Duct connections (tube connections in general <a href="#">F16L</a> )		
1/08	. Ventilation arrangements in connection with air ducts, e.g. arrangements for mounting ventilators ({ <a href="#">E21F 1/003</a> takes precedence}); ventilators in general <a href="#">F04D</a> )		
1/085	. . {using compressed gas injectors}		
1/10	. Air doors ({ <a href="#">E21F 1/003</a> takes precedence; air locks <a href="#">E21F 1/145</a> ; dam doors <a href="#">E21F 17/12</a> }; doors in general <a href="#">E06B</a> )		
1/12	. . Devices for automatically opening air doors		
1/14	. Air partitions; Air locks ({ <a href="#">E21F 1/003</a> takes precedence}); dams <a href="#">E21F 17/103</a> ; air locks for foundations <a href="#">E02D</a> )		
1/145	. . {Air locks (air doors <a href="#">E21F 1/10</a> ; dam doors <a href="#">E21F 17/12</a> )}		
1/16	. Shaft covers		
1/18	. Gravity flow ventilation ( <a href="#">E21F 1/02</a> - <a href="#">E21F 1/16</a> take precedence)		
<b>3/00</b>	<b>Cooling or drying of air (air-conditioning rooms or spaces in general <a href="#">F24F</a>)</b>		

##### Safety devices (flue-gas indicators [G01N](#)); Rescue devices

<b>5/00</b>	<b>Means or methods for preventing, binding, depositing, or removing dust {(in combination with mining machines <a href="#">E21C 35/22</a>)}; Preventing explosions or fires (dams <a href="#">E21F 17/103</a>; applying liquids or other fluent materials to surfaces in general <a href="#">B05</a>)</b>		
5/02	. by wetting or spraying		
5/04	. . Spraying barriers (spray nipples, spraying in general <a href="#">B05B</a> , <a href="#">B05D</a> ; picks with arrangements of fluid-spraying nozzles <a href="#">E21C 35/187</a> )		
5/06	. . Fluids used for spraying		
5/08	. Rock dusting of mines; Depositing other protective substances		

- 13/06 . {Transport of mined material} at or adjacent to the working face
- 13/061 . . {Chutes and braking conveyors for average and steep slopes, adapted for mining purposes (chutes in general [B65G 11/00](#))}
- 13/063 . . {Loading devices for use in mining}
- 13/065 . . . {Scrapers (digging devices guided by cables [E02F 3/54](#); combined with planing means [E21C 27/42](#))}
- 13/066 . . {Scraper chain conveyors (in general [B65G 19/00](#))}
- 13/068 . . . {Special adaptations for use at the junction of the working face with the gallery, e.g. driving stations coupled to the driving station of the winning machine}
- 13/08 . Shifting conveyors or other transport devices from one location at the working face to another (guiding mining machines along conveyors for the cut mineral [E21C 35/12](#); in combination with mine roof supports for step-by-step movement [E21D 23/00](#))
- 13/083 . . {Conveyor belts removing methods or devices}
- 13/086 . . {Armoured conveyors shifting devices}
- 13/10 . Anchorings for conveyors
- 15/00 Methods or devices for placing filling-up materials in underground workings** (dams [E21F 17/103](#) ; chocks made of flexible containers filled with backfilling material [E21D 15/483](#))
- 15/005 . {characterised by the kind or composition of the backfilling material}
- 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](#))
- 16/02 . of tunnels
- 17/00 Methods or devices for use in mines or tunnels, not covered elsewhere** (mine lighting [F21](#), [H05B](#))
- 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 in mines
- 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
- 17/107 . . inflatable
- 17/12 . . Dam doors {(air doors [E21F 1/10](#); air locks [E21F 1/145](#))}
- 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 mine lifts [B66B](#); gas-sensitive devices *per se* [G01N](#))
- 17/185 . . {Rock-pressure control devices with or without alarm devices; Alarm devices in case of roof subsidence (props with load-measuring devices [E21D 15/46](#))}