SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

F21 LIGHTING

F21V FUNCTIONAL FEATURES OR DETAILS OF LIGHTING DEVICES OR SYSTEMS THEREOF; STRUCTURAL COMBINATIONS OF LIGHTING DEVICES WITH OTHER ARTICLES, NOT OTHERWISE PROVIDED FOR [1, 7]

Note(s) [7, 2009.01]

1. Groups F21V 1/00-F21V 14/00 cover aspects related to light emission or distribution. Groups F21V 15/00-F21V 31/00 cover aspects not related to light emission or distribution.
2. Details of non-electric lighting devices or systems are classified in groups F21V 35/00-F21V 37/00 only if a special adaptation related to the use of a non-electric light source is of interest.
3. In this subclass, it is desirable to add the indexing codes of subclasses F21W and F21Y.

Subclass index

DETAILS OF PARTS INVOLVED IN LIGHT EMISSION OR DISTRIBUTION
Shades; globes; refractors; reflectors....1/00, 3/00, 5/00, 7/00
Light guides....8/00
Light filters....9/00
Other screens....11/00
Combinations of elements....13/00
Changing characteristics or distribution of the light....14/00
DETAILS OF PARTS NOT INVOLVED IN LIGHT EMISSION OR DISTRIBUTION
Fastening....17/00, 19/00
Arrangements for supporting or suspending....21/00
Arrangements of electric circuit elements....23/00
Cable stowing....27/00
Protection; safety; cooling; tightness....15/00, 25/00, 29/00, 31/00
Combinations with other articles....33/00
Candle holders....35/00
Arrangements of mantles or burners....36/00
Details of combustion lighting....37/00
SUBJECT MATTER NOT PROVIDED FOR IN OTHER GROUPS OF THIS SUBCLASS....99/00

1/00 Shades for light sources [1, 2006.01]
1/02 • Frames **[1, 2006.01]**
1/04 • • rigid (F21V 1/08 takes precedence) **[1, 2006.01]**
1/06 • • foldable or collapsible **[1, 2006.01]**
1/08 • • adjustable **[1, 2006.01]**
1/10 • Rotating shades **[1, 2006.01]**
1/12 • Composite shades **[1, 2006.01]**
1/14 • Covers for frames; Frameless shades **[1, 2006.01]**
1/16 • • characterised by the material **[1, 2006.01]**
1/18 • • • the material being paper **[1, 2006.01]**
1/20 • • • the material being glass **[1, 2006.01]**
1/22 • • • the material being plastics **[1, 2006.01]**
1/24 • • • the material being metal **[1, 2006.01]**
1/26 • Manufacturing shades **[1, 2006.01]**

3/00 Globes; Bowls; Cover glasses (with refracting properties F21V 5/00; with reflecting properties F21V 7/00; characterised by cooling arrangements F21V 29/506) **[1, 2006.01, 2015.01]**
3/02 • characterised by the shape **[1, 2006.01]**
3/04 • characterised by the material; characterised by surface treatments or coatings **[1, 2006.01]**

5/00 Refractors for light sources (characterised by cooling arrangements F21V 29/504) **[1, 2006.01, 2015.01]**
5/02 • of prismatic shape (F21V 5/04 takes precedence) **[1, 2006.01]**
5/04 • of lens shape **[1, 2006.01]**
5/06 • Hanging lustres for chandeliers **[1, 2006.01]**
5/08 • producing an asymmetric light distribution **[1, 7, 2006.01]**

7/00 Reflectors for light sources (characterised by cooling arrangements F21V 29/505) **[1, 2006.01]**
7/04 • Optical design **[1, 7, 2006.01]**
7/05 • • plane **[1, 7, 2006.01]**
7/06 • • with parabolic curvature **[1, 7, 2006.01]**
7/07 • • with hyperbolic curvature **[1, 7, 2006.01]**
7/08 • • with elliptical curvature **[1, 7, 2006.01]**
7/09 • • with a combination of different curvatures **[1, 7, 2006.01]**

7/10 • Construction **[1, 7, 2006.01]**
7/16 • • with provision for adjusting the curvature **[1, 7, 2006.01]**
7/18 • • with provision for folding or collapsing **[1, 7, 2006.01]**
7/22 • characterised by the material; characterised by surface treatments or coatings **[1, 2006.01]**

8/00 Use of light guides, e.g. fibre optic devices, in lighting devices or systems [4, 2006.01]

9/00 Light filters (coloured shades F21V 1/00; characterised by cooling arrangements F21V 29/502)**; Selection of luminescent materials for light screens [1, 2006.01, 2015.01]**
9/02 • for simulating daylight (F21V 9/04, F21V 9/06, F21V 9/16 take precedence) **[1, 2006.01]**
9/04 • for filtering out infra-red radiation (using liquid-filled chambers F21V 9/12) **[1, 2006.01]**
9/06 • for filtering out ultra-violet radiation (F21V 9/16 takes precedence) **[1, 2006.01]**
9/08 • for producing coloured light, e.g. monochromatic; for reducing intensity of light (F21V 9/16 takes precedence) **[1, 2006.01]**
9/10 • • with provision for variation of the colour or intensity (F21V 9/12 takes precedence) **[1, 2006.01]**
9/12 • • with liquid-filled chambers **[1, 2006.01]**
9/14 • for producing polarised light **[1, 2006.01]**
9/16 • Selection of luminescent materials for light screens **[1, 2006.01]**

11/00 Screens not covered by groups F21V 1/00, F21V 3/00, F21V 7/00 or F21V 9/00 (characterised by cooling arrangements F21V 29/502) **[1, 2006.01, 2015.01]**
11/02 • using parallel laminae or strips, e.g. of Venetian-blind type (F21V 11/06 takes precedence) **[1, 2006.01]**
11/04 • • adjustable **[1, 2006.01]**
11/06 • using crossed laminae or strips; using lattices or honeycombs **[1, 2006.01]**
11/08 • using diaphragms containing one or more apertures **[1, 2006.01]**
11/10 • • of iris type **[1, 2006.01]**
11/12 • • of slot type **[1, 2006.01]**
11/14 • • with many small apertures **[1, 2006.01]**
11/16 • using sheets without apertures, e.g. fixed **[1, 2006.01]**
11/18 • • movable, e.g. flaps, slides **[1, 2006.01]**

13/00 Producing particular characteristics or distribution of the light emitted by means of a combination of elements specified in two or more of main groups F21V 1/00-F21V 11/00 (changing the characteristics or distribution of the light emitted by adjustment of parts F21V 14/00) **[1, 7, 2006.01]**
13/02 • Combinations of only two kinds of elements **[1, 2006.01]**
13/04 • • the elements being reflectors and refractors **[1, 2006.01]**
13/06 • • • a reflector being rotatable **[1, 2006.01]**
13/08 • • the elements being reflectors and filters **[1, 2006.01]**
13/10 • • the elements being reflectors and screens **[1, 2006.01]**
13/12 • Combinations of only three kinds of elements **[1, 2006.01]**
13/14 • • the elements being reflectors, refractors, and filters **[1, 2006.01]**

14/00 Changing the characteristics or distribution of the light emitted by adjustment of parts (reflectors with provision for adjusting the curvature F21V 7/16; light filters with provision for variation of colour or intensity F21V 9/10; screens using adjustable parallel laminae or strips, e.g. of Venetian-blind type, F21V 11/04; screens using iris-type diaphragms F21V 11/10; screens using movable sheets without apertures, e.g. flaps or slides, F21V 11/18; adjustable mountings for lighting devices F21V 21/14) **[7, 2006.01]**
14/02 • by movement of light sources **[7, 2006.01]**
14/04 • by movement of reflectors **[7, 2006.01]**
14/06 • by movement of refractors **[7, 2006.01]**
14/08 • by movement of screens **[7, 2006.01]**

15/00 Protecting lighting devices from damage (protection from thermal damage F21V 29/00; gas-tight or water-tight arrangements F21V 31/00) **[1, 2006.01, 2015.01]**
15/01 • Housings, e.g. material or assembling of housing parts (F21V 15/02 takes precedence) **[7, 2006.01]**
15/015 • • Devices for covering joints between adjacent lighting devices; End coverings **[7, 2006.01]**
15/02 • Cages **[1, 2006.01]**
15/04 • Resilient mountings, e.g. shock-absorbers **[1, 2006.01]**

17/00 Fastening of component parts of lighting devices, e.g. shades, globes, refractors, reflectors, filters, screens, grids or protective cages (of light sources or light holders F21V 19/00) **[1, 2006.01]**
17/02 • with provision for adjustment (F21V 17/04-F21V 17/08 take precedence) **[1, 7, 2006.01]**
17/04 • onto or by the light source **[1, 2006.01]**
17/06 • onto or by the lamp holder **[1, 2006.01]**
17/08 • onto the supporting or suspending arrangements of the lighting device, e.g. power cords, standards **[7, 2006.01]**
17/10 • characterised by specific fastening means or way of fastening (F21V 17/02-F21V 17/08 take precedence) **[7, 2006.01]**
17/12 • • by screwing **[7, 2006.01]**
17/14 • • Bayonet-type fastening **[7, 2006.01]**
17/16 • • by deformation of parts of the lighting device; Snap action mounting **[7, 2006.01]**
17/18 • • Latch-type fastening, e.g. with rotary action **[7, 2006.01]**
17/20 • • by toggle-action levers **[7, 2006.01]**

19/00 Fastening of light sources or lamp holders (fastening electric light source solely by the coupling device H01R 33/00) **[1, 2006.01]**
19/02 • with provision for adjustment, e.g. for focusing **[1, 7, 2006.01]**
19/04 • with provision for changing light source, e.g. turret **[1, 2006.01]**
19/06 • Fastening incandescent mantles or other incandescent bodies to lamp parts; Suspension devices for incandescent mantles or other incandescent bodies (arrangements of mantles or other incandescent bodies on burners F21V 36/00) **[1, 7, 2006.01]**

21/00 Supporting, suspending, or attaching arrangements for lighting devices (F21V 17/00, F21V 19/00 take precedence)**; Hand grips [1, 7, 2006.01]**
21/002 • making direct electrical contact, e.g. by piercing (F21V 21/35 takes precedence) **[7, 2006.01]**
21/005 • for several lighting devices in an end-to-end arrangement, i.e. light tracks **[7, 2006.01]**

21/008 • Suspending from a cable or suspension line **[7, 2006.01]**
21/02 • Wall, ceiling, or floor bases; Fixing pendants or arms to the bases (F21V 21/08 takes precedence; bases for movable standing lamps F21V 21/06) **[1, 2006.01]**
21/03 • • Ceiling bases, e.g. ceiling roses (F21V 21/04 takes precedence) **[7, 2006.01]**
21/04 • • Recessed bases **[1, 2006.01]**
21/06 • Bases for movable standing lamps; Fixing standards to the bases (F21V 21/08 takes precedence) **[1, 2006.01]**
21/08 • Devices for easy attachment to a desired place **[1, 2006.01]**
21/084 • • Head fittings **[7, 2006.01]**
21/088 • • Clips; Clamps **[7, 2006.01]**
21/092 • • Suction devices **[7, 2006.01]**
21/096 • • Magnetic devices **[7, 2006.01]**
21/10 • Pendants, arms or standards; Fixing lighting devices to pendants, arms or standards (adjustable mounting F21V 21/14) **[1, 2006.01]**
21/104 • • Pendants **[7, 2006.01]**
21/108 • • Arms **[7, 2006.01]**
21/112 • • Fixing lighting devices to pendants (F21V 21/002 takes precedence) **[7, 2006.01]**
21/116 • • Fixing lighting devices to arms or standards (F21V 21/002 takes precedence) **[7, 2006.01]**
21/12 • • capable of being elongated or shortened by the insertion or removal of intermediate pieces **[1, 2006.01]**
21/13 • Spring-loaded poles fixed at both ends **[7, 2006.01]**
21/14 • Adjustable mountings **[1, 2006.01]**
21/15 • • specially adapted for power operation, e.g. by remote control **[7, 2006.01]**
21/16 • • using wires or cords **[1, 2006.01]**
21/18 • • • operated by springs **[1, 2006.01]**
21/20 • • • operated by weights **[1, 2006.01]**
21/22 • • telescopic **[1, 2006.01]**
21/24 • • Lazy-tongs **[1, 2006.01]**
21/26 • • Pivoted arms **[1, 2006.01]**
21/28 • • • adjustable in more than one plane **[1, 2006.01]**
21/29 • • • • employing universal joints **[1, 2006.01]**
21/30 • • Pivoted housings or frames **[1, 2006.01]**
21/32 • • Flexible tubes **[1, 2006.01]**
21/34 • Supporting elements displaceable along a guiding element **[1, 2006.01]**
21/35 • • with direct electrical contact between the supporting element and electric conductors running along the guiding element **[7, 2006.01]**
21/36 • Hoisting or lowering devices, e.g. for maintenance **[1, 2006.01]**
21/38 • • with a cable **[1, 2006.01]**
21/40 • Hand grips **[7, 2006.01]**

23/00 Arrangement of electric circuit elements in or on lighting devices (protecting lighting devices from thermal damage F21V 29/00) **[1, 2006.01, 2015.01]**
23/02 • the elements being transformers or impedances **[1, 2006.01]**
23/04 • the elements being switches (safety devices F21V 25/00) **[1, 2006.01]**
23/06 • the elements being coupling devices **[1, 2006.01]**

25/00 Safety devices structurally associated with lighting devices (gas-tight or water-tight arrangements F21V 31/00) **[1, 2006.01]**
25/02 • coming into action when lighting device is disturbed, dismounted, or broken **[1, 2006.01]**
25/04 • • breaking the electric circuit **[1, 2006.01]**
25/06 • • feeding a quenching fluid to the light source **[1, 2006.01]**
25/08 • • cutting the incandescent filament **[1, 2006.01]**
25/10 • coming into action when lighting device is overloaded, e.g. thermal switch **[1, 2006.01]**
25/12 • Flameproof or explosion-proof arrangements **[1, 2006.01]**

27/00 Cable-stowing arrangements structurally associated with lighting devices, e.g. reels [1, 2006.01]
27/02 • Cable inlets **[7, 2006.01]**

29/00 Protecting lighting devices from thermal damage; Cooling or heating arrangements specially adapted for lighting devices or systems (lighting fixtures combined with outlets for air-treatment systems F24F 13/078) **[1, 7, 2006.01, 2015.01]**
29/10 • Arrangement of heat-generating components to reduce thermal damage, e.g. by distancing heat-generating components from other components to be protected **[2015.01]**
29/15 • Thermal insulation **[2015.01]**
29/50 • Cooling arrangements (air-treatment systems dissipating or using the heat of lighting fixtures F24F 3/056) **[2015.01]**
29/502 • • characterised by the adaptation for cooling of specific components **[2015.01]**
29/503 • • • of light sources (cooling arrangements structurally associated with gas-discharge or vapour-discharge lamps H01J 61/52; cooling arrangements structurally associated with electric incandescent lamps H01K 1/58; cooling arrangements structurally associated with light-emitting diodes H01L 33/64) **[2015.01]**
29/504 • • • of refractors **[2015.01]**
29/505 • • • of reflectors **[2015.01]**
29/506 • • • of globes, bowls or cover glasses **[2015.01]**
29/507 • • • of means for protecting lighting devices from damage, e.g. housings **[2015.01]**
29/508 • • • of electrical circuits **[2015.01]**
29/51 • • using condensation or evaporation of a fluid, e.g. heat pipes **[2015.01]**
29/52 • • • electrically powered, e.g. refrigeration systems **[2015.01]**
29/54 • • using thermoelectric means, e.g. Peltier elements **[2015.01]**
29/56 • • using liquid coolants (F21V 29/51 takes precedence) **[2015.01]**
29/57 • • • characterised by control arrangements **[2015.01]**
29/58 • • • characterised by the coolants **[2015.01]**
29/60 • • characterised by the use of a forced flow of gas, e.g. air **[2015.01]**
29/61 • • • characterised by control arrangements **[2015.01]**
29/63 • • • using electrically-powered vibrating means; using ionic wind **[2015.01]**
29/65 • • • the gas flowing in a closed circuit **[2015.01]**
29/67 • • • characterised by the arrangement of fans **[2015.01]**
29/70 • • characterised by passive heat-dissipating elements, e.g. heat-sinks **[2015.01]**

29/71 • • • using a combination of separate elements interconnected by heat-conducting means, e.g. with heat pipes or thermally conductive bars between separate heat-sink elements **[2015.01]**

29/73 • • • the elements being adjustable with respect to each other, e.g. hinged **[2015.01]**

29/74 • • • with fins or blades **[2015.01]**

29/75 • • • • with fins or blades having different shapes, thicknesses or spacing **[2015.01]**

29/76 • • • • with essentially identical parallel planar fins or blades, e.g. with comb-like cross-section **[2015.01]**

29/77 • • • • with essentially identical diverging planar fins or blades, e.g. with fan-like or star-like cross-section **[2015.01]**

29/78 • • • • with helically or spirally arranged fins or blades **[2015.01]**

29/80 • • • with pins or wires **[2015.01]**

29/81 • • • • with pins or wires having different shapes, lengths or spacing **[2015.01]**

29/83 • • • the elements having apertures, ducts or channels, e.g. heat radiation holes **[2015.01]**

29/85 • characterised by the material (liquid coolants F21V 29/56) **[2015.01]**

29/87 • • Organic material, e.g. filled polymer composites; Thermo-conductive additives or coatings therefor **[2015.01]**

29/89 • • Metals **[2015.01]**

29/90 • Heating arrangements **[2015.01]**

31/00 Gas-tight or water-tight arrangements [1, 2006.01]

31/03 • with provision for venting **[7, 2006.01]**

31/04 • Provision of filling media **[1, 2006.01]**

33/00 Structural combinations of lighting devices with other articles, not otherwise provided for [1, 7, 2006.01]

35/00 Candle holders [1, 2006.01]

36/00 Arrangements of mantles or other incandescent bodies on burners [1, 2006.01]

36/02 • in ceiling lamps **[1, 2006.01]**

37/00 Details of lighting devices employing combustion as light source, not otherwise provided for [1, 7, 2006.01]

37/02 • Special adaptation for protection against draughts **[7, 2006.01]**

99/00 Subject matter not provided for in other groups of this subclass [2006.01]