

## 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) [2009.01]

1. Groups F21V 1/00-F21V 14/00 cover details of those parts involved in light emission or distribution. Groups F21V 15/00-F21V 31/00 cover details of those parts not so involved.
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**

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

#### **3/00 Globes; Bowls; Cover glasses** (with refracting properties F21V 5/00; with reflecting properties F21V 7/00)

- 3/02 • characterised by the shape
- 3/04 • characterised by the material; characterised by surface treatments or coatings

#### **5/00 Refractors for light sources**

- 5/02 • of prismatic shape (F21V 5/04 takes precedence)
- 5/04 • of lens shape
- 5/06 • Hanging lustres for chandeliers
- 5/08 • producing an asymmetric light distribution [1, 7]

#### **7/00 Reflectors for light sources**

- 7/04 • Optical design (F21V 7/22 takes precedence) [1, 7]
- 7/05 • • plane [1, 7]
- 7/06 • • with parabolic curvature [1, 7]
- 7/07 • • with hyperbolic curvature [1, 7]
- 7/08 • • with elliptical curvature [1, 7]
- 7/09 • • with a combination of different curvatures [1, 7]
- 7/10 • Construction (F21V 7/22 takes precedence) [1, 7]
- 7/16 • • with provision for adjusting the curvature [1, 7]
- 7/18 • • with provision for folding or collapsing [1, 7]
- 7/20 • • specially adapted for facilitating cooling, e.g. with fins [1, 7]
- 7/22 • characterised by the material; characterised by surface treatments or coatings

- 8/00 Use of light guides, e.g. fibre optic devices, in lighting devices or systems** (light guides *per se*, structural details of arrangements with other optical elements G02B 6/00) [4]
- 9/00 Light filters** (coloured shades F21V 1/00); **Selection of luminescent materials for light screens** (luminescent materials *per se* C09K 11/00; electroluminescent light sources *per se* H05B 33/00)
- 9/02 • for simulating daylight (F21V 9/04, F21V 9/06, F21V 9/16 take precedence)
- 9/04 • for filtering out infra-red radiation (using liquid-filled chambers F21V 9/12)
- 9/06 • for filtering out ultra-violet radiation (F21V 9/16 takes precedence)
- 9/08 • for producing coloured light, e.g. monochromatic; for reducing intensity of light (F21V 9/16 takes precedence)
- 9/10 • with provision for variation of the colour or intensity (F21V 9/12 takes precedence)
- 9/12 • with liquid-filled chambers
- 9/14 • for producing polarised light
- 9/16 • Selection of luminescent materials for light screens
- 11/00 Screens not covered by groups F21V 1/00, F21V 3/00, F21V 7/00 or F21V 9/00**
- 11/02 • using parallel laminae or strips, e.g. of Venetian-blind type (F21V 11/06 takes precedence)
- 11/04 • adjustable
- 11/06 • using crossed laminae or strips; using lattices or honeycombs
- 11/08 • using diaphragms containing one or more apertures
- 11/10 • of iris type
- 11/12 • of slot type
- 11/14 • with many small apertures
- 11/16 • using sheets without apertures, e.g. fixed (F21V 11/02, F21V 11/06 take precedence)
- 11/18 • movable, e.g. flaps, slides
- 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]
- 13/02 • Combinations of only two kinds of elements
- 13/04 • the elements being reflectors and refractors
- 13/06 • a reflector being rotatable
- 13/08 • the elements being reflectors and filters
- 13/10 • the elements being reflectors and screens
- 13/12 • Combinations of only three kinds of elements
- 13/14 • the elements being reflectors, refractors, and filters
- 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 iris-type diaphragms F21V 11/10; adjustable mountings for lighting devices F21V 21/14) [7]
- 14/02 • by movement of light sources [7]
- 14/04 • by movement of reflectors [7]
- 14/06 • by movement of refractors [7]
- 14/08 • by movement of screens [7]
- 15/00 Protecting lighting devices from damage** (cooling or heating arrangements F21V 29/00; gas-tight or water-tight arrangements F21V 31/00)
- 15/01 • Housings, e.g. material or assembling of housing parts (F21V 15/02 takes precedence) [7]
- 15/015 • Devices for covering joints between adjacent lighting devices; End coverings [7]
- 15/02 • Cages
- 15/04 • Resilient mountings, e.g. shock-absorbers
- 15/06 • Thermal insulation [7]
- 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; gas-tight or water-tight arrangements F21V 31/00)
- 17/02 • with provision for adjustment (F21V 17/04-F21V 17/08 take precedence; changing the characteristics or distribution of the light emitted by adjustment of parts F21V 14/00) [1, 7]
- 17/04 • onto or by the light source
- 17/06 • onto or by the lamp holder
- 17/08 • onto the supporting or suspending arrangements of the lighting device, e.g. power cords, standards [7]
- 17/10 • characterised by specific fastening means or way of fastening (F21V 17/02-F21V 17/08 take precedence) [7]
- 17/12 • by screwing [7]
- 17/14 • Bayonet-type fastening [7]
- 17/16 • by deformation of parts of the lighting device; Snap action mounting [7]
- 17/18 • Latch-type fastening, e.g. with rotary action [7]
- 17/20 • by toggle-action levers [7]
- 19/00 Fastening of light sources or lamp holders** (fastening electric light source solely by the coupling device H01R 33/00)
- 19/02 • with provision for adjustment, e.g. for focusing (changing the characteristics or distribution of the light emitted by adjustment of parts F21V 14/00) [1, 7]
- 19/04 • with provision for changing light source, e.g. turret
- 19/06 • Fastening incandescent mantles or other incandescent bodies to lamp parts; Suspension devices for incandescent mantles or other incandescent bodies [1, 7]
- 21/00 Supporting, suspending, or attaching arrangements for lighting devices** (F21V 17/00, F21V 19/00 take precedence); **Hand grips** [1, 7]
- 21/002 • making direct electrical contact, e.g. by piercing (F21V 21/35 takes precedence) [7]
- 21/005 • for several lighting devices in an end-to-end arrangement, i.e. light tracks [7]
- 21/008 • Suspending from a cable or suspension line [7]
- 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)
- 21/03 • Ceiling bases, e.g. ceiling roses (F21V 21/04 takes precedence) [7]
- 21/04 • Recessed bases
- 21/06 • Bases for movable standing lamps; Fixing standards to the bases (F21V 21/08 takes precedence)
- 21/08 • Devices for easy attachment to a desired place
- 21/084 • Head fittings (for medical purposes A61B 1/06) [7]
- 21/088 • Clips; Clamps [7]
- 21/092 • Suction devices [7]
- 21/096 • Magnetic devices [7]

- 21/10 • Pendants, arms or standards; Fixing lighting devices to pendants, arms or standards (adjustable mounting F21V 21/14)
- 21/104 • • Pendants [7]
- 21/108 • • Arms [7]
- 21/112 • • Fixing lighting devices to pendants (F21V 21/002 takes precedence) [7]
- 21/116 • • Fixing lighting devices to arms or standards (F21V 21/002 takes precedence) [7]
- 21/12 • • capable of being elongated or shortened by the insertion or removal of intermediate pieces
- 21/13 • Spring-loaded poles fixed at both ends [7]
- 21/14 • Adjustable mountings
- 21/15 • • specially adapted for power operation, e.g. by remote control [7]
- 21/16 • • using wires or cords
- 21/18 • • • operated by springs
- 21/20 • • • operated by weights
- 21/22 • • telescopic
- 21/24 • • Lazy-tongs
- 21/26 • • Pivoted arms
- 21/28 • • • adjustable in more than one plane
- 21/29 • • • • employing universal joints
- 21/30 • • Pivoted housings or frames
- 21/32 • • Flexible tubes
- 21/34 • Supporting elements displaceable along a guiding element
- 21/35 • • with direct electrical contact between the supporting element and electric conductors running along the guiding element [7]
- 21/36 • Hoisting or lowering devices, e.g. for maintenance (F21V 21/14 takes precedence)
- 21/38 • • with a cable
- 21/40 • Hand grips [7]
- 23/00 Arrangement of electric circuit elements in or on lighting devices**
- 23/02 • the elements being transformers or impedances
- 23/04 • the elements being switches (safety devices F21V 25/00)
- 23/06 • the elements being coupling devices
- 25/00 Safety devices structurally associated with lighting devices** (gas-tight or water-tight arrangements F21V 31/00)
- 25/02 • coming into action when lighting device is disturbed, dismantled, or broken
- 25/04 • • breaking the electric circuit
- 25/06 • • feeding a quenching fluid to the light source
- 25/08 • • cutting the incandescent filament
- 25/10 • coming into action when lighting device is over-loaded, e.g. thermal switch
- 25/12 • Flameproof or explosion-proof arrangements
- 27/00 Cable-stowing arrangements structurally associated with lighting devices, e.g. reels**
- 27/02 • Cable inlets [7]
- 29/00 Cooling or heating arrangements** (reflectors specially adapted for cooling F21V 7/20; cooling of air-treatment systems with air-flow over lighting fixtures F24F 3/056; lighting fixtures combined with outlets for air-treatment systems F24F 13/078; cooling of projectors G03B 21/16) [1, 7]
- 29/02 • Cooling by forcing air over or around the light source (cooling arrangements structurally associated with electric lamps H01J 61/52, H01K 1/58) [7]
- 31/00 Gas-tight or water-tight arrangements**
- 31/03 • with provision for venting [7]
- 31/04 • Provision of filling media (safety devices F21V 25/00; cooling arrangements F21V 29/00)
- 33/00 Structural combinations of lighting devices with other articles, not otherwise provided for [1, 7]**
- 35/00 Candle holders**
- 36/00 Arrangements of mantles or other incandescent bodies on burners** (attaching to lamp parts F21V 19/06)
- 36/02 • in ceiling lamps
- 37/00 Details of lighting devices employing combustion as light source, not otherwise provided for [1, 7]**
- 37/02 • Special adaptation for protection against draughts [7]
- 99/00 Subject matter not provided for in other groups of this subclass [2006.01]**