

# CPC COOPERATIVE PATENT CLASSIFICATION

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

### LIGHTING; HEATING

#### F21 LIGHTING (NOTE omitted)

#### F21S NON-PORTABLE LIGHTING DEVICES; SYSTEMS THEREOF; VEHICLE LIGHTING DEVICES SPECIALLY ADAPTED FOR VEHICLE EXTERIORS

##### NOTES

1. This subclass covers:
  - devices or systems intended for fixed installation or for use at a permanent location, e.g. free-standing floor- or table-lamps.
  - aspects related to the optical, mechanical, thermal or electrical arrangement of elements in vehicle illuminating devices specially adapted for vehicle exterior, e.g. headlamps.
  - aspects related to the optical, mechanical, thermal or electrical arrangement of elements in vehicle light signalling devices specially adapted for vehicle exterior, e.g. brake lamps or direction indicator lights.
2. This subclass does not cover:
  - devices or systems specially adapted for transportation, which are covered by subclass [F21L](#).
  - aspects related to the vehicles in which lighting devices are arranged, e.g. the arrangement or operation of lighting devices on vehicles, which are covered by [B60Q](#).
  - control of vehicle lighting devices in relation to the vehicle as a whole, e.g. for levelling, swivelling or aiming. Such arrangements are covered by group [B60Q 1/06](#), even if the movement of the lighting device occurs inside the lamp housing.
3. Non-electric lighting devices or systems are classified in groups [F21S 11/00](#) - [F21S 15/00](#) only if a special adaptation related to the use of a non-electric light source is of interest.
4. In this subclass, it is desirable to add the indexing codes of subclasses [F21W](#) and [F21Y](#).

##### 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.

##### Electric lighting

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| <p><b>2/00</b> Systems of lighting devices, not provided for in main groups <a href="#">F21S 4/00</a> - <a href="#">F21S 10/00</a> or <a href="#">F21S 19/00</a>, e.g. of modular construction</p> <p>2/005 . {of modular construction}</p> <p><b>4/00</b> Lighting devices or systems using a string or strip of light sources</p> <p>4/10 . with light sources attached to loose electric cables, e.g. Christmas tree lights</p> <p>4/15 . . the cables forming a grid, net or web structure</p> <p>4/20 . with light sources held by or within elongate supports</p> <p>4/22 . . flexible or deformable, e.g. into a curved shape</p> <p>4/24 . . . of ribbon or tape form, e.g. LED tapes</p> <p>4/26 . . . of rope form, e.g. LED lighting ropes, or of tubular form</p> <p>4/28 . . rigid, e.g. LED bars</p> <p><b>6/00</b> Lighting devices intended to be free-standing<br/>(<a href="#">F21S 9/00</a>, <a href="#">F21S 10/00</a>, {<a href="#">F21S 13/12</a>} take precedence {lighting devices specially adapted to be transported from place to place, e.g. lighting devices carried on wheeled supports <a href="#">F21L</a>; details of supports for lighting devices <a href="#">F21V 21/00</a>})</p> | <p>6/001 . {being candle-shaped (with varying lighting effect of simulating flames <a href="#">F21S 10/04</a>; string of light sources <a href="#">F21S 4/00</a>)}</p> <p>6/002 . {Table lamps, e.g. for ambient lighting}</p> <p>6/003 . . {for task lighting, e.g. for reading or desk work, e.g. angle poise lamps}</p> <p>6/004 . {with a lamp housing in direct contact with the floor or ground}</p> <p>6/005 . {with a lamp housing maintained at a distance from the floor or ground via a support, e.g. standing lamp for ambient lighting}</p> <p>6/006 . . {for direct lighting only, e.g. task lighting}</p> <p>6/007 . . {for indirect lighting only, e.g. torchiere with reflector bowl directed towards ceiling}</p> <p>6/008 . . {with a combination of direct and indirect lighting}</p> <p><b>8/00</b> Lighting devices intended for fixed installation<br/>(<a href="#">F21S 9/00</a>, <a href="#">F21S 10/00</a> take precedence; using a string or strip of light sources <a href="#">F21S 4/00</a>)</p> <p>8/003 . {Searchlights, i.e. outdoor lighting device producing powerful beam of parallel rays, e.g. for military or attraction purposes (searchlights mounted on a vehicle <a href="#">B60Q 1/245</a>)}</p> |
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8/006	• {Solar simulators, e.g. for testing photovoltaic panels}	9/02	• the power supply being a battery or accumulator
8/02	• of recess-mounted type, e.g. downlighters (specially adapted for vehicle exteriors <a href="#">F21S 41/00-F21S 45/00</a> )	9/022	• • {Emergency lighting devices}
8/022	• • {intended to be recessed in a floor or like ground surface, e.g. pavement or false floor}	9/024	• • • {using a supplementary light source for emergency lighting}
8/024	• • {intended to be recessed in a wall or like vertical structure, e.g. building facade}	9/026	• • {rechargeable by using wind power, e.g. using wind turbines}
8/026	• • {intended to be recessed in a ceiling or like overhead structure, e.g. suspended ceiling}	9/028	• • {rechargeable by using hydropower, e.g. using water powered turbines}
8/028	• • {being retractable, i.e. having two fixed positions, one recessed, e.g. in a wall, floor or ceiling, and one extended when in use}	9/03	• • rechargeable by exposure to light
8/03	• {of surface-mounted type ( <a href="#">F21S 8/02</a> , <a href="#">F21S 8/04</a> take precedence; details of wall or floor bases <a href="#">F21V 21/02</a> )}	9/032	• • • {the solar unit being separate from the lighting unit}
8/031	• • {the device consisting essentially only of a light source holder with an exposed light source, e.g. a fluorescent tube}	9/035	• • • {the solar unit being integrated within the support for the lighting unit, e.g. within or on a pole}
8/032	• • {the surface being a floor or like ground surface, e.g. pavement}	9/037	• • • {the solar unit and the lighting unit being located within or on the same housing}
8/033	• • {the surface being a wall or like vertical structure, e.g. building facade}	9/04	• the power supply being a generator
8/035	• • • {by means of plugging into a wall outlet, e.g. night light}	9/043	• • {driven by wind power, e.g. by wind turbines}
8/036	• • • {by means of a rigid support, e.g. bracket or arm}	9/046	• • {driven by hydropower, e.g. by water powered turbines}
8/037	• • • {for mounting in a corner, i.e. between adjacent walls or wall and ceiling}	<b>10/00</b>	<b>Lighting devices or systems producing a varying lighting effect</b>
8/038	• • {intended to be mounted on a light track (suspended from a light track <a href="#">F21S 8/066</a> ; details of supporting elements displaceable along a guiding element <a href="#">F21V 21/34</a> )}	10/002	• {using liquids, e.g. water}
8/04	• intended only for mounting on a ceiling or the like overhead structures ( <a href="#">F21S 8/02</a> takes precedence; {details of ceiling bases <a href="#">F21V 21/03</a> })	10/005	• {using light guides (light guides specially adapted for lighting devices <a href="#">G02B 6/0001</a> )}
8/043	• • {mounted by means of a rigid support, e.g. bracket or arm}	10/007	• {using rotating transparent or colored disks, e.g. gobo wheels}
8/046	• • {having multiple lighting devices, e.g. connected to a common ceiling base}	10/02	• changing colors ( <a href="#">F21S 10/002</a> - <a href="#">F21S 10/007</a> , <a href="#">F21S 10/04</a> take precedence)
8/06	• • by suspension	10/023	• • {by selectively switching fixed light sources}
8/061	• • • {with a non-rigid pendant, i.e. a cable, wire or chain}	10/026	• • {by movement of parts, e.g. by movement of reflectors or light sources ( <a href="#">F21S 10/007</a> takes precedence)}
8/063	• • • {with a rigid pendant, i.e. a pipe or rod}	10/04	• simulating flames
8/065	• • • {multi-branched, e.g. a chandelier}	10/043	• • {by selectively switching fixed light sources}
8/066	• • • {from a light track (details of supporting elements displaceable along a guiding element <a href="#">F21V 21/34</a> )}	10/046	• • {by movement of parts, e.g. by movement of reflectors or light sources}
8/068	• • • {from a stretched wire}	10/06	• flashing, e.g. with rotating reflector or light source ( <a href="#">signalling lighting devices mounted on vehicles B60Q 1/26</a> )}
8/08	• with a standard ( <a href="#">F21S 6/00</a> takes precedence)}	10/063	• • {for providing a rotating light effect}
8/081	• • {of low-built type, e.g. landscape light}	10/066	• • • {by selectively switching fixed light sources}
8/083	• • • {of bollard type, i.e. with lighting fixture integrated into the standard or mounted on top of it and having substantially the same diameter}	<b>Non-electric lighting</b>	
8/085	• • {of high-built type, e.g. street light}	<b>11/00</b>	<b>Non-electric lighting devices or systems using daylight</b> ( <a href="#">roofs with sky-light opening E04D 13/03</a> ; <a href="#">sun blinds for windows with means for redirecting light onto ceiling of a room E06B 9/00</a> ; hybrid lighting devices combining artificial and natural light <a href="#">F21S 19/00</a> ; solar heat collectors <a href="#">F24S</a> ; solar cells or solar cell modules <a href="#">H01L 31/00</a> )}
8/086	• • • {with lighting device attached sideways of the standard, e.g. for roads and highways}	11/002	• {characterised by the means for collecting or concentrating the sunlight, e.g. parabolic reflectors or Fresnel lenses}
8/088	• • • {with lighting device mounted on top of the standard, e.g. for pedestrian zones}	11/005	• • {with tracking means for following the position of the sun}
<b>9/00</b>	<b>Lighting devices with a built-in power supply; Systems employing lighting devices with a built-in power supply</b>	11/007	• {characterised by the means for transmitting light into the interior of a building}
		<b>13/00</b>	<b>Non-electric lighting devices or systems employing a point-like light source; Non-electric lighting devices or systems employing a light source of unspecified shape</b>

13/02	• Devices intended to be fixed, e.g. ceiling lamp, wall lamp	41/176	• • • Light sources where the light is generated by photoluminescent material spaced from a primary light generating element
13/04	• • with a pendant	41/18	• • • {Combination of light sources of different types or shapes}
13/06	• • • multi-branched, e.g. chandelier	41/19	• • Attachment of light sources or lamp holders (achieving variable light distribution by movable light sources F21S 41/657)
13/08	• • with suspension from a stretched wire	41/192	• • • {Details of lamp holders, terminals or connectors}
13/10	• • with a standard, e.g. street lamp	41/194	• • • {Bayonet attachments}
13/12	• Devices intended to be free-standing, e.g. table lamp, floor lamp	41/196	• • • {Wire spring attachments}
13/14	• Lighting systems	41/198	• • • {Snap-fit attachments}
<b>15/00</b>	<b>Non-electric lighting devices or systems employing light sources not covered by main groups F21S 11/00, F21S 13/00 or F21S 19/00</b>	41/20	• characterised by refractors, transparent cover plates, light guides or filters
<b>2017/00</b>	<b>Details solely applicable to the devices covered by groups F21S 13/00 and F21S 15/00</b>	41/24	• • Light guides
<b>2017/02</b>	• Fastening and lifting of the lamp-glass	41/25	• • Projection lenses
<b>19/00</b>	<b>Lighting devices or systems employing combinations of electric and non-electric light sources; Replacing or exchanging electric light sources with non-electric light sources or vice versa</b>	41/255	• • • Lenses with a front view of circular or truncated circular outline
19/005	• {Combining sunlight and electric light sources for indoor illumination}	41/26	• • • Elongated lenses
		41/265	• • • Composite lenses; Lenses with a patch-like shape
		41/27	• • • Thick lenses
		41/275	• • • Lens surfaces, e.g. coatings or surface structures
		41/28	• • {Cover glass}
		41/285	• • {Refractors, transparent cover plates, light guides or filters not provided in groups F21S 41/24-F21S 41/28}
		41/29	• • Attachment thereof (for achieving variable light distribution F21S 41/63)
		41/295	• • • {specially adapted to projection lenses}
		41/30	• characterised by reflectors
		41/32	• • Optical layout thereof
		41/321	• • • {the reflector being a surface of revolution or a planar surface, e.g. truncated}
		41/322	• • • {the reflector using total internal reflection}
		41/323	• • • {the reflector having two perpendicular cross sections having regular geometrical curves of a distinct nature}
		41/33	• • • Multi-surface reflectors, e.g. reflectors with facets or reflectors with portions of different curvature
		41/331	• • • • {the reflector consisting of complete annular areas}
		41/332	• • • • {with continuity at the junction between adjacent areas}
		41/333	• • • • {with discontinuity at the junction between adjacent areas}
		41/334	• • • • {the reflector consisting of patch like sectors}
		41/335	• • • • {with continuity at the junction between adjacent areas}
		41/336	• • • • {with discontinuity at the junction between adjacent areas}
		41/337	• • • • {the reflector having a structured surface, e.g. with facets or corrugations}
		41/338	• • • • {the reflector having surface portions added to its general concavity}
		41/36	• • • Combinations of two or more separate reflectors
		41/365	• • • • successively reflecting the light
		41/37	• • characterised by their material, surface treatment or coatings
<b>41/00</b>	<b>Illuminating devices specially adapted for vehicle exteriors, e.g. headlamps (reversing lights F21S 43/00)</b>		
41/10	• characterised by the light source		
41/12	• • characterised by the type of emitted light		
41/125	• • • Coloured light		
41/13	• • • Ultraviolet light; Infrared light		
41/135	• • • Polarised		
41/14	• • characterised by the type of light source		
41/141	• • • Light emitting diodes [LED]		
41/143	• • • • the main emission direction of the LED being parallel to the optical axis of the illuminating device		
41/145	• • • • the main emission direction of the LED being opposite to the main emission direction of the illuminating device		
41/147	• • • • the main emission direction of the LED being angled to the optical axis of the illuminating device		
41/148	• • • • the main emission direction of the LED being perpendicular to the optical axis		
41/151	• • • • arranged in one or more lines		
41/153	• • • • arranged in a matrix		
41/155	• • • • Surface emitters, e.g. organic light emitting diodes [OLED]		
41/16	• • • Laser light sources		
41/162	• • • Incandescent light sources, e.g. filament or halogen lamps		
41/164	• • • • having two or more filaments		
41/166	• • • • characterised by the shape of the filament		
41/168	• • • • having a filament arranged transversally to the optical axis of the illuminating device		
41/17	• • • Discharge light sources		
41/172	• • • • High-intensity discharge light sources		
41/173	• • • • Fluorescent light sources		

41/39	. . Attachment thereof ( <a href="#">achieving variable light distribution by movable reflectors F21S 41/675</a> )	43/241	. . . . of complex shape
41/395	. . . { <a href="#">specially adapted to extension reflectors</a> }	43/242	. . . characterised by the emission area
41/40	. characterised by screens, non-reflecting members, light-shielding members or fixed shades	43/243	. . . . emitting light from one or more of its extremities
41/43	. . characterised by the shape thereof	43/245	. . . . emitting light from one or more of its major surfaces
41/435	. . . { <a href="#">Hoods or cap-shaped</a> }	43/247	. . . with a single light source being coupled into the light guide
41/47	. . Attachment thereof ( <a href="#">achieving variable light distribution by movable screens F21S 41/683</a> )	43/249	. . . with two or more light sources being coupled into the light guide
41/50	. characterised by aesthetic components not otherwise provided for, e.g. decorative trim, partition walls or covers	43/251	. . . the light guides being used to transmit light from remote light sources
41/55	. . Attachment thereof	43/255	. . { <a href="#">Filters</a> }
41/60	. characterised by a variable light distribution	43/26	. . { <a href="#">Refractors, transparent cover plates, light guides or filters not provided in groups F21S 43/235 - F21S 43/255</a> }
41/62	. . for adaptation between right-hand and left-hand traffic	43/27	. . Attachment thereof
41/63	. . by acting on refractors, filters or transparent cover plates	43/30	. characterised by reflectors
41/635	. . . { <a href="#">by moving refractors, filters or transparent cover plates</a> }	43/31	. . Optical layout thereof
41/64	. . . by changing their light transmissivity, e.g. by liquid crystal or electrochromic devices	43/315	. . . { <a href="#">using total internal reflection</a> }
41/645	. . . . { <a href="#">by electro-optic means, e.g. liquid crystal or electrochromic devices</a> }	43/33	. . characterised by their material, surface treatment or coatings
41/65	. . by acting on light sources	43/37	. . Attachment thereof
41/657	. . . by moving light sources	43/40	. characterised by the combination of reflectors and refractors
41/663	. . . by switching light sources ( <a href="#">by switching incandescent light sources F21S 41/162</a> )	43/50	. characterised by aesthetic components not otherwise provided for, e.g. decorative trim, partition walls or covers
41/67	. . by acting on reflectors	43/51	. . { <a href="#">Attachment thereof</a> }
41/675	. . . by moving reflectors	<b>45/00</b>	<b>Arrangements within vehicle lighting devices specially adapted for vehicle exteriors, for purposes other than emission or distribution of light</b>
41/68	. . by acting on screens	45/10	. Protection of lighting devices ( <a href="#">cooling of lighting devices F21S 45/40</a> ; <a href="#">waterproofing of lighting devices F21S 45/50</a> )
41/683	. . . by moving screens	45/20	. Promoting gas flow in lighting devices, e.g. directing flow toward the cover glass for demisting ( <a href="#">ventilation F21S 45/30</a> ; <a href="#">forced cooling F21S 45/42</a> )
41/686	. . . . Blades, i.e. screens moving in a vertical plane	45/30	. Ventilation or drainage of lighting devices
41/689	. . . . Flaps, i.e. screens pivoting around one of their edges	45/33	. . specially adapted for headlamps
41/692	. . . . Shields, i.e. screens not creating an image meant to be projected	45/37	. . specially adapted for signal lamps
41/695	. . . . Screens rotating around a vertical axis ( <a href="#">rotating flaps F21S 41/689</a> )	45/40	. Cooling of lighting devices
41/698	. . . . Shaft-shaped screens rotating along its longitudinal axis	45/42	. . Forced cooling
<b>43/00</b>	<b>Signalling devices specially adapted for vehicle exteriors, e.g. brake lamps, direction indicator lights or reversing lights</b>	45/43	. . . using gas
43/10	. characterised by the light source	45/435	. . . . circulating the gas within a closed system
43/13	. . characterised by the type of light source	45/46	. . . using liquid
43/14	. . . Light emitting diodes [LED]	45/465	. . . . from other vehicle cooling systems, e.g. from air-conditioning or engine cooling systems
43/145	. . . . Surface emitters, e.g. organic light emitting diodes [OLED]	45/47	. . Passive cooling, e.g. using fins, thermal conductive elements or openings
43/15	. . . Strips of light sources	45/48	. . . with means for conducting heat from the inside to the outside of the lighting devices, e.g. with fins on the outer surface of the lighting device
43/16	. . . Light sources where the light is generated by photoluminescent material spaced from a primary light generating element	45/49	. . Attachment of the cooling means
43/19	. . Attachment of light sources or lamp holders	45/50	. Waterproofing
43/195	. . . { <a href="#">Details of lamp holders, terminals or connectors</a> }	45/60	. Heating of lighting devices, e.g. for demisting
43/20	. characterised by refractors, transparent cover plates, light guides or filters	45/70	. Prevention of harmful light leakage
43/235	. . Light guides		
43/236	. . . characterised by the shape of the light guide		
43/237	. . . . rod-shaped		
43/239	. . . . plate-shaped		