COOPERATIVE PATENT CLASSIFICATION

MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

LIGHTING; HEATING

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.

Electric lighting

2/00 Systems of lighting devices, not provided for in main groups F21S 4/00 - F21S 10/00 or F21S 19/00, e.g. of modular construction

WARNING

All groups listed in this Warning should be considered in order to perform a complete search.

2/005 [of modular construction]

4/00 Lighting devices or systems using a string or strip of light sources

4/10 with light sources attached to loose electric cables, e.g. Christmas tree lights
4/15 the cables forming a grid, net or web structure
4/20 with light sources held by or within elongate supports
4/22 flexible or deformable, e.g. into a curved shape
4/24 of ribbon or tape form, e.g. LED tapes
4/26 of rope form, e.g. LED lighting ropes, or of tubular form

4/28 rigid, e.g. LED bars

6/00 Lighting devices intended to be free-standing
(F21S 9/00, F21S 10/00, F21S 13/12) take precedence (lighting devices specially adapted to be transported from place to place, e.g. lighting devices carried on wheeled supports F21L; details of supports for lighting devices F21V 21/00)

6/001 [being candle-shaped (with varying lighting effect of simulating flames F21S 10/04; string of light sources F21S 4/00)]

6/002 [Table lamps, e.g. for ambient lighting]
6/003 [for task lighting, e.g. for reading or desk work, e.g. angle poise lamps]
6/004 [with a lamp housing in direct contact with the floor or ground]
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]
6/006 [for direct lighting only, e.g. task lighting] 6/007 [for indirect lighting only, e.g. torchiere with reflector bowl directed towards ceiling]
6/008 [with a combination of direct and indirect lighting]

8/00 Lighting devices intended for fixed installation
(F21S 9/00, F21S 10/00) take precedence; using a string or strip of light sources F21S 4/00)
Electric lighting

8/03 . . . [Searchlights, i.e. outdoor lighting device producing powerful beam of parallel rays, e.g. for military or attraction purposes (searchlights mounted on a vehicle B60Q 1/24)]

8/06 . . . [Solar simulators, e.g. for testing photovoltaic panels]

8/02 . . . of recess-mounted type, e.g. downlighters (specially adapted for vehicle exteriors F21S 41/00-F21S 45/00)

8/02 . . . [intended to be recessed in a floor or like ground surface, e.g. pavement or false floor]

8/02 . . . [intended to be recessed in a wall or like vertical structure, e.g. building facade]

8/02 . . . [intended to be recessed in a ceiling or like overhead structure, e.g. suspended ceiling]

8/02 . . . [being retractable, i.e. having two fixed positions, one recessed, e.g. in a wall, floor or ceiling, and one extended when in use]

8/03 . . . of surface-mounted type (F21S 8/02, F21S 8/04 take precedence; details of wall or floor bases F21V 21/03)

8/03 . . . [the device consisting essentially only of a light source holder with an exposed light source, e.g. a fluorescent tube]

8/03 . . . [the surface being a floor or like ground surface, e.g. pavement]

8/03 . . . [the surface being a wall or like vertical structure, e.g. building facade]

8/03 . . . [by means of plugging into a wall outlet, e.g. night light]

8/03 . . . [by means of a rigid support, e.g. bracket or arm]

8/03 . . . [for mounting in a corner, i.e. between adjacent walls or wall and ceiling]

8/03 . . . [intended to be mounted on a light track (suspended from a light track F21S 8/066; details of supporting elements displaceable along a guiding element F21V 21/34)]

8/04 . . . intended only for mounting on a ceiling or the like overhead structures (F21S 8/02 takes precedence; details of ceiling bases F21V 21/03)]

8/04 . . . [mounted by means of a rigid support, e.g. bracket or arm]

8/04 . . . [having multiple lighting devices, e.g. connected to a common ceiling base]

8/04 . . . by suspension

8/06 . . . [with a non-rigid pendant, i.e. a cable, wire or chain]

8/06 . . . [with a rigid pendant, i.e. a pipe or rod]

8/06 . . . [multi-branched, e.g. a chandelier]

8/06 . . . [from a light track (details of supporting elements displaceable along a guiding element F21V 21/34)]

8/06 . . . [from a stretched wire]

8/08 . . . with a standard (F21S 6/00 takes precedence)

8/08 . . . [of low-built type, e.g. landscape light]

8/08 . . . [of bollard type, i.e. with lighting fixture integrated into the standard or mounted on top of it and having substantially the same diameter]

8/08 . . . [of high-built type, e.g. street light]

8/08 . . . [with lighting device attached sideways of the standard, e.g. for roads and highways]

8/08 . . . [with lighting device mounted on top of the standard, e.g. for pedestrian zones]

9/00 Lighting devices with a built-in power supply;
Systems employing lighting devices with a built-in power supply

9/02 . . . the power supply being a battery or accumulator

9/02 . . . [Emergency lighting devices]

9/02 . . . [using a supplementary light source for emergency lighting]

9/02 . . . [rechargeable by using wind power, e.g. using wind turbines]

9/02 . . . [rechargeable by using hydropower, e.g. using water powered turbines]

9/02 . . . rechargeable by exposure to light

9/02 . . . [the solar unit being separate from the lighting unit]

9/02 . . . [the solar unit being integrated within the support for the lighting unit, e.g. within or on a pole]

9/02 . . . [the solar unit and the lighting unit being located within or on the same housing]

9/04 . . . the power supply being a generator

9/04 . . . [driven by wind power, e.g. by wind turbines]

9/04 . . . [driven by hydropower, e.g. by water powered turbines]

10/00 Lighting devices or systems producing a varying lighting effect

10/02 . . . [using liquids, e.g. water (F21W 2121/02 takes precedence)]

10/05 . . . [using light guides (light guides specially adapted for lighting devices G02B 6/0001)]

10/07 . . . [using rotating transparent or colored disks, e.g. gobo wheels]

10/02 . . . changing colors ((F21S 10/002 - F21S 10/007, F21S 10/04 take precedence)

10/02 . . . [by selectively switching fixed light sources]

10/02 . . . [by movement of parts, e.g. by movement of reflectors or light sources (F21S 10/007 takes precedence)]

10/04 . . . simulating flames

10/04 . . . [by selectively switching fixed light sources]

10/06 . . . flashing, e.g. with rotating reflector or light source (signalling lighting devices mounted on vehicles B60Q 1/26)

10/06 . . . [for providing a rotatng light effect]

10/06 . . . [by selectively switching fixed light sources]

Non-electric lighting

11/00 Non-electric lighting devices or systems using daylight {roofs with sky-light opening E04D 13/03; sun blinds for windows with means for redirecting light onto ceiling of a room E06B 9/00; hybrid lighting devices combining artificial and natural light F21S 19/00; solar heat collectors F24S; solar cells or solar cell modules H01L 31/00)

11/02 . . . [characterised by the means for collecting or concentrating the sunlight, e.g. parabolic reflectors or Fresnel lenses]

11/05 . . . [with tracking means for following the position of the sun]
Non-electric lighting

11/007 . (characterised by the means for transmitting light into the interior of a building)
13/00 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
13/02 . Devices intended to be fixed, e.g. ceiling lamp, wall lamp
13/04 . . with a pendant
13/06 . . multi-branched, e.g. chandelier
13/08 . . with suspension from a stretched wire
13/10 . . with a standard, e.g. street lamp
13/12 . Devices intended to be free-standing, e.g. table lamp, floor lamp
13/14 . Lighting systems
15/00 Non-electric lighting devices or systems employing light sources not covered by main groups F21S 11/00, F21S 13/00 or F21S 19/00

2017/00 Details solely applicable to the devices covered by groups F21S 13/00 and F21S 15/00
2017/02 . Fastening and lifting of the lamp-glass
19/00 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
19/005 . (Combining sunlight and electric light sources for indoor illumination)

Vehicle lighting devices specially adapted for vehicle exteriors

41/00 Illuminating devices specially adapted for vehicle exteriors, e.g. headlamps (reversing lights F21S 43/00)

WARNING
Group F21S 41/00 is incomplete pending reclassification of documents from group F21S 43/00.
Groups F21S 43/00 and F21S 41/00 should be considered in order to perform a complete search.

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

WARNING
Group F21S 41/14 is impacted by reclassification into groups F21S 41/15 and F21S 41/153.
Groups F21S 41/14, F21S 41/16 and F21S 41/176 should be considered in order to perform a complete search.

41/151 . . . arranged in one or more lines

WARNING
Group F21S 41/151 is incomplete pending reclassification of documents from groups F21S 41/141, F21S 41/143 and F21S 41/147.
All groups should be considered in order to perform a complete search.

WARNING
Group F21S 41/143 is impacted by reclassification into groups F21S 41/145, F21S 41/151 and F21S 41/153.
All groups listed in this Warning should be considered in order to perform a complete search.

41/145 . . . the main emission direction of the LED being opposite to the main emission direction of the illuminating device

WARNING
Group F21S 41/145 is incomplete pending reclassification of documents from group F21S 41/143.
Groups F21S 41/143 and F21S 41/145 should be considered in order to perform a complete search.

41/147 . . . the main emission direction of the LED being angled to the optical axis of the illuminating device

WARNING
Group F21S 41/147 is impacted by reclassification into groups F21S 41/148, F21S 41/151 and F21S 41/153.
All groups listed in this Warning should be considered in order to perform a complete search.

41/148 . . . the main emission direction of the LED being perpendicular to the optical axis

WARNING
Group F21S 41/148 is incomplete pending reclassification of documents from group F21S 41/147.
Groups F21S 41/147 and F21S 41/148 should be considered in order to perform a complete search.
Vehicle lighting devices specially adapted for vehicle exteriors

41/153 . . . . . arranged in a matrix

**WARNING**

Group F21S 41/153 is incomplete pending reclassification of documents from groups F21S 41/141, F21S 41/143 and F21S 41/147.

All groups listed in this Warning should be considered in order to perform a complete search.

41/155 . . . . . Surface emitters, e.g. organic light emitting diodes [OLED]

41/16 . . . . . Laser light sources

**WARNING**

Group F21S 41/16 is incomplete pending reclassification of documents from group F21S 41/14.

Groups F21S 41/14 and F21S 41/16 should be considered in order to perform a complete search.

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

**WARNING**

Group F21S 41/17 is impacted by reclassification into group F21S 41/172.

Groups F21S 41/17 and F21S 41/172 should be considered in order to perform a complete search.

41/172 . . . . . High-intensity discharge light sources

**WARNING**

Group F21S 41/172 is incomplete pending reclassification of documents from group F21S 41/17.

Groups F21S 41/17 and F21S 41/172 should be considered in order to perform a complete search.

41/173 . . . . . Fluorescent light sources

41/176 . . . . . Light sources where the light is generated by photoluminescent material spaced from a primary light generating element

**WARNING**

Group F21S 41/176 is incomplete pending reclassification of documents from group F21S 41/14.

Groups F21S 41/14 and F21S 41/176 should be considered in order to perform a complete search.

41/18 . . . [Combination of light sources of different types or shapes]

41/19 . . . Attachment of light sources or lamp holders (achieving variable light distribution by movable light sources F21S 41/657)

41/192 . . . . . [Details of lamp holders, terminals or connectors]

41/194 . . . . . [Bayonet attachments]

41/196 . . . . . [Wire spring attachments]

41/198 . . . . . [Snap-fit attachments]

41/20 . . . characterised by refractors, transparent cover plates, light guides or filters

41/24 . . . . . Light guides

41/25 . . . . . Projection lenses

41/255 . . . . . Lenses with a front view of circular or truncated circular outline

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

**WARNING**

Group F21S 41/32 is impacted by reclassification into group F21S 41/33. Groups F21S 41/32 and F21S 41/33 should be considered in order to perform a complete search.

41/312 . . . . . [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

**WARNING**

Group F21S 41/33 is incomplete pending reclassification of documents from group F21S 41/32.

Groups F21S 41/32 and F21S 41/33 should be considered in order to perform a complete search.

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]
Vehicle lighting devices specially adapted for vehicle exteriors

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

**WARNING**

Group F21S 41/36 is impacted by reclassification into group F21S 41/365.

Groups F21S 41/36 and F21S 41/365 should be considered in order to perform a complete search.

41/365 . . . . successively reflecting the light

**WARNING**

Group F21S 41/365 is incomplete pending reclassification of documents from group F21S 41/36.

Groups F21S 41/36 and F21S 41/365 should be considered in order to perform a complete search.

41/37 . . . . characterised by their material, surface treatment or coatings

41/39 . . . . Attachment thereof (achieving variable light distribution by movable reflectors F21S 41/675)

41/395 . . . . [specially adapted to extension reflectors]

41/40 . . . . characterised by screens, non-reflecting members, light-shielding members or fixed shades

41/43 . . . . characterised by the shape thereof

41/435 . . . . [Hoods or cap-shaped]

41/47 . . . . Attachment thereof (achieving variable light distribution by movable screens F21S 41/683)

41/50 . . . . characterised by aesthetic components not otherwise provided for, e.g. decorative trim, partition walls or covers

41/55 . . . . Attachment thereof

41/60 . . . . characterised by a variable light distribution

41/62 . . . . for adaptation between right-hand and left-hand traffic

41/63 . . . . by acting on refractors, filters or transparent cover plates

41/635 . . . . [by moving refractors, filters or transparent cover plates]

41/64 . . . . by changing their light transmissivity, e.g. by liquid crystal or electrochromic devices

41/645 . . . . [by electro-optic means, e.g. liquid crystal or electrochromic devices]

41/65 . . . . by acting on light sources

41/657 . . . . by moving light sources

41/663 . . . . by switching light sources (by switching incandescent light sources F21S 41/162)

41/67 . . . . by acting on reflectors

41/675 . . . . by moving reflectors

41/68 . . . . by acting on screens

41/683 . . . . by moving screens

41/686 . . . . Blades, i.e. screens moving in a vertical plane

41/689 . . . . Flaps, i.e. screens pivoting around one of their edges

41/692 . . . . Shields, i.e. screens not creating an image meant to be projected

41/695 . . . . Screens rotating around a vertical axis (rotating flaps F21S 41/689)

41/698 . . . . Shaft-shaped screens rotating along its longitudinal axis

43/00 Signalling devices specially adapted for vehicle exteriors, e.g. brake lamps, direction indicator lights or reversing lights

**WARNING**

Group F21S 43/00 is impacted by reclassification into groups F21S 41/00 and F21W 2104/00.

Groups F21S 43/00, F21S 41/00 and F21W 2104/00 should be considered in order to perform a complete search.

43/10 . . . . characterised by the light source

43/13 . . . . characterised by the type of light source

**WARNING**

Group F21S 43/13 is impacted by reclassification into group F21S 43/16.

Groups F21S 43/13 and F21S 43/16 should be considered in order to perform a complete search.

43/14 . . . . Light emitting diodes [LED]

43/145 . . . . Surface emitters, e.g. organic light emitting diodes [OLED]

43/15 . . . . Strips of light sources

43/16 . . . . Light sources where the light is generated by photoluminescent material spaced from a primary light generating element

**WARNING**

Group F21S 43/16 is incomplete pending reclassification of documents from group F21S 43/13.

Groups F21S 43/13 and F21S 43/16 should be considered in order to perform a complete search.

43/19 . . . . Attachment of light sources or lamp holders

43/195 . . . . [Details of lamp holders, terminals or connectors]

43/20 . . . . characterised by refractors, transparent cover plates, light guides or filters

43/235 . . . . Light guides

43/236 . . . . characterised by the shape of the light guide

43/237 . . . . rod-shaped

43/239 . . . . plate-shaped

43/241 . . . . of complex shape

43/242 . . . . characterised by the emission area

43/243 . . . . emitting light from one or more of its extremities

43/245 . . . . emitting light from one or more of its major surfaces

43/247 . . . . with a single light source being coupled into the light guide

43/249 . . . . with two or more light sources being coupled into the light guide

43/251 . . . . the light guides being used to transmit light from remote light sources

43/255 . . . . [Filters]
Vehicle lighting devices specially adapted for vehicle exteriors

43/26 . . {Refractors, transparent cover plates, light guides or filters not provided in groups F21S 43/23 - F21S 43/255}

43/27 . . Attachment thereof

43/30 . . characterised by reflectors

43/31 . . Optical layout thereof

43/315 . . . {using total internal reflection}

43/33 . . characterised by their material, surface treatment or coatings

43/37 . . Attachment thereof

43/40 . . characterised by the combination of reflectors and refractors

43/50 . . characterised by aesthetic components not otherwise provided for, e.g. decorative trim, partition walls or covers

43/51 . . {Attachment thereof}

45/00 Arrangements within vehicle lighting devices specially adapted for vehicle exteriors, for purposes other than emission or distribution of light

WARNING

Group F21S 45/00 is impacted by reclassification into groups F21S 45/20, F21S 45/70 and F21W 2104/00. All groups should be considered in order to perform a complete search.

45/10 . . Protection of lighting devices (cooling of lighting devices F21S 45/40; waterproofing of lighting devices F21S 45/50)

45/20 . . Promoting gas flow in lighting devices, e.g. directing flow toward the cover glass for demisting (ventilation F21S 45/30; forced cooling F21S 45/42)

WARNING

Group F21S 45/20 is incomplete pending reclassification of documents from group F21S 45/00. Groups F21S 45/00 and F21S 45/20 should be considered in order to perform a complete search.

45/30 . . Ventilation or drainage of lighting devices

45/33 . . specially adapted for headlamps

45/37 . . specially adapted for signal lamps

45/40 . . Cooling of lighting devices

45/42 . . Forced cooling

45/43 . . . using gas

WARNING

Group F21S 45/43 is impacted by reclassification into group F21S 45/435. Groups F21S 45/43 and F21S 45/435 should be considered in order to perform a complete search.

45/45 . . . circulating the gas within a closed system

WARNING

Group F21S 45/453 is incomplete pending reclassification of documents from group F21S 45/43.

Groups F21S 45/43 and F21S 45/435 should be considered in order to perform a complete search.

45/46 . . . using liquid

WARNING

Group F21S 45/46 is impacted by reclassification into group F21S 45/465.

Groups F21S 45/46 and F21S 45/465 should be considered in order to perform a complete search.

45/465 . . . from other vehicle cooling systems, e.g. from air-conditioning or engine cooling systems

WARNING

Group F21S 45/465 is impacted by reclassification into group F21S 45/46.

Groups F21S 45/46 and F21S 45/465 should be considered in order to perform a complete search.

45/47 . . Passive cooling, e.g. using fins, thermal conductive elements or openings

WARNING

Group F21S 45/47 is impacted by reclassification into group F21S 45/48.

Groups F21S 45/47 and F21S 45/48 should be considered in order to perform a complete search.

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

WARNING

Group F21S 45/48 is incomplete pending reclassification of documents from group F21S 45/47.

Groups F21S 45/47 and F21S 45/48 should be considered in order to perform a complete search.

45/49 . . . Attachment of the cooling means

45/50 . . . Waterproofing

45/50 . . . Heating of lighting devices, e.g. for demisting

45/70 . . . Prevention of harmful light leakage

WARNING

Group F21S 45/70 is incomplete pending reclassification of documents from group F21S 45/00.

Groups F21S 45/00 and F21S 45/70 should be considered in order to perform a complete search.