

F21S

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

Definition statement

This place covers:

- Lighting devices or systems of lighting devices which are specially adapted for fixed installation relative to the places at or articles on which they are installed. The installation can be at an immobile location such as the wall or the ceiling of a building or on a mobile object having a primary purpose other than the transport of the lighting device or system, such as a passenger vehicle.
- Lighting devices or systems of lighting devices which are specially adapted for use at a permanent location for a prolonged period of time (e.g. free-standing floor or table lamps).

Relationships with other classification places

The borderline between subclasses [F21L](#) and [F21S](#) is defined by the words "portable" and "fixed", not by "movable" and "non-movable". For example, lighting devices or systems used in the operation of vehicles, e.g. headlights, which are fixed on the vehicle and move together with the vehicle when it is travelling are considered to be non-portable, since they are components of the vehicle and fixed relative to the remainder of the vehicle at a permanent location. Such lighting devices are classified in subclass [F21S](#). Lighting devices transported by a vehicle between locations and used for lighting purposes not related to the operation of the vehicle are classified in [F21L](#).

Functional features or details of lighting devices or systems are classified in [F21V](#).

Structural combinations of lighting devices with other articles are classified in [F21V 33/00](#), unless specifically provided for in this subclass or elsewhere in the CPC.

Light sources per se are covered in places indicated in the section Informative references.

In this subclass, it is desirable to add the indexing codes of subclass [F21W](#) in order to indicate the uses or applications of lighting devices, and of [F21Y](#) in order to indicate the form of the light sources of lighting devices.

References

Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Arrangement or adaptation of lighting devices for vehicles	B60Q
Railway light signals	B61L 5/18
Illumination specially adapted for railway points, form signals, or gates	B61L 9/00
Adaptation of lighting devices for ships or other waterborne vessels	B63B 45/00
Adaptation of lighting devices for aircraft	B64D 47/02
Road surface pavement lights	E01C 17/00
Illuminated markings for roads	E01F 9/20 , E01F 9/547 , E01F 9/559 , E01F 9/582 E01F 9/615
Apparatus for illuminating scene for taking photographs	G03B 15/02
Traffic lights	G08G 1/095

Illuminated signs	G09F 13/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Candles	C11C 5/00
Incandescent bodies heated by combustion. e.g. mantles	F21H
Non-electric light sources using luminescence	F21K 2/00
Light sources using electrochemiluminescence	F21K 2/08
Light sources using charges of combustible material, e.g. illuminating flash devices	F21K 5/00
Light sources using semiconductor devices as light generating elements	F21K 9/00
Light sources not otherwise provided for	F21K 99/00
Candle holders	F21V 35/00
Burners	F23D
Fireworks	F42B 4/00
Electric discharge tubes or discharge lamps	H01J
Electric incandescent lamps	H01K
Semiconductor devices specially adapted for light emission	H01L 33/00
Fastening electric light sources solely by the coupling device	H01R 33/00
Masers, lasers	H01S
Electric arc lamps	H05B 31/00
Electroluminescent light sources	H05B 33/00
Electric light sources using a combination of different types of light generation	H05B 35/00
Organic semiconductor devices specially adapted for light emission	H10K 50/00

Special rules of classification

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. If there is no such special adaptation, classification is made in a relevant general place.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Light source	The entity (e.g. light bulb, fluorescent tube, gas mantle or combustible charge) that generates light for a lighting device.
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Synonyms and Keywords

In patent documents, the following abbreviations are often used:

LED	Light Emitting Diode
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F21S 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

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Lighting devices or systems using a string or strip of light sources	F21S 4/00
Lighting devices intended to be free standing	F21S 6/00

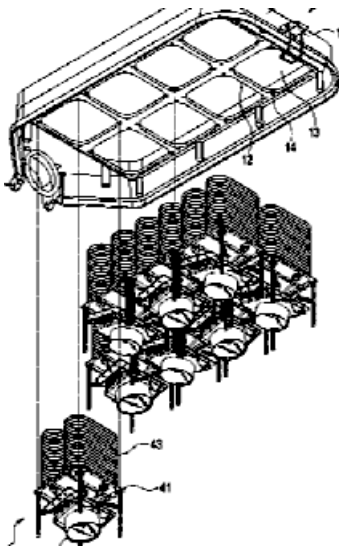
F21S 2/005

{of modular construction}

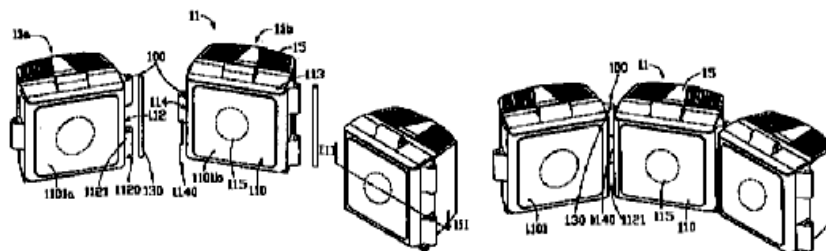
Definition statement

This place covers:

- System of identical lighting modules forming a lighting device with a plurality of light sources



Articulated light source assembly



Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

Module	A self-contained assembly of light emitting devices that can be installed as a unit, for insertion in a housing in order to form a lighting device, e.g. for street lighting
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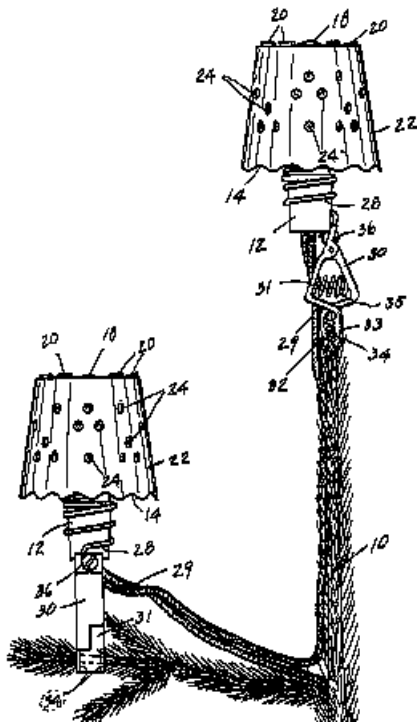
F21S 4/10

with light sources attached to loose electric cables, e.g. Christmas tree lights

Definition statement

This place covers:

- String of lights for decorative purposes, e.g. for Christmas trees
- String of lights for illuminating working places
- String of lights interconnected by loose cables adapted for Christmas trees



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

String rigidly mounted on a frame or included in a resin	F21S 4/20
Christmas tree decorations	A47G 33/08
Lamp holder for string of lights interconnected by loose cables	F21V 19/0005

Special rules of classification

- Luminous garlands for Christmas trees, these documents should be given the Indexing Code [F21W 2121/04](#).

F21S 4/20

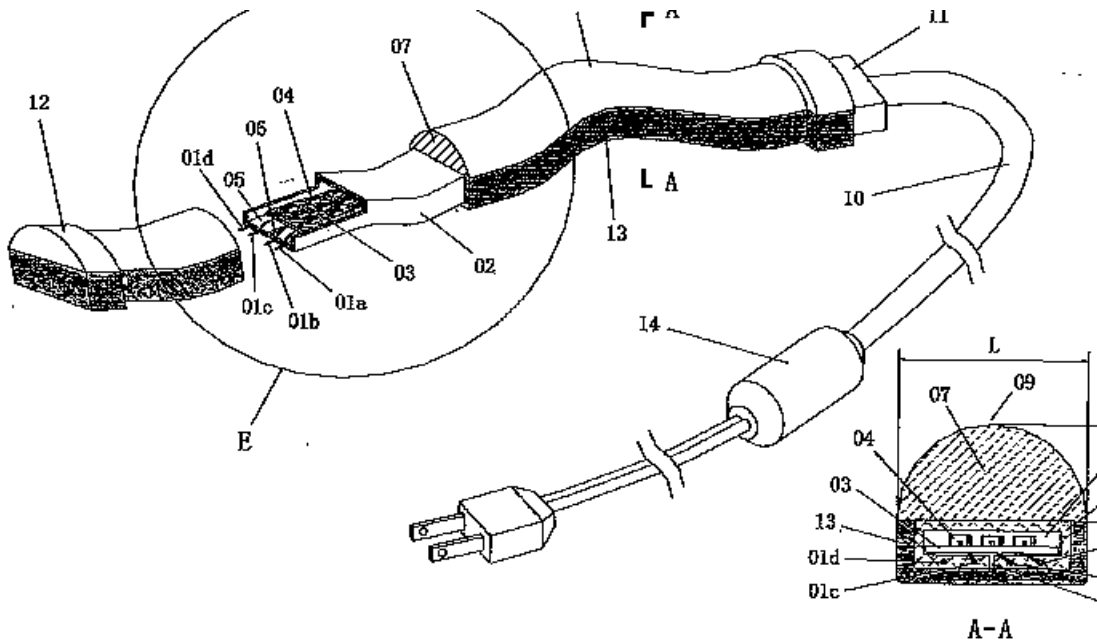
with light sources held by or within elongate supports

Definition statement

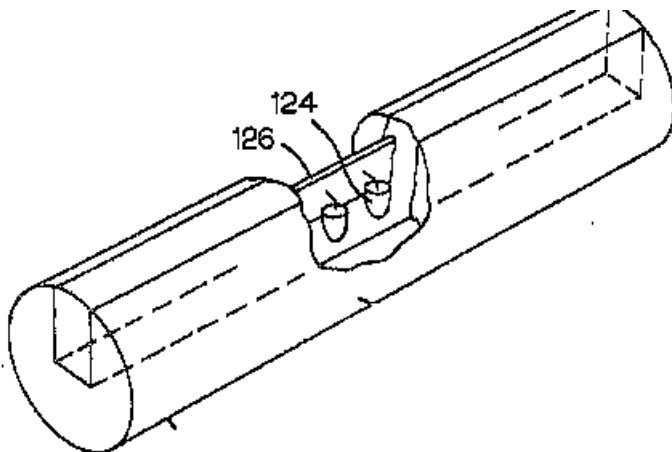
This place covers:

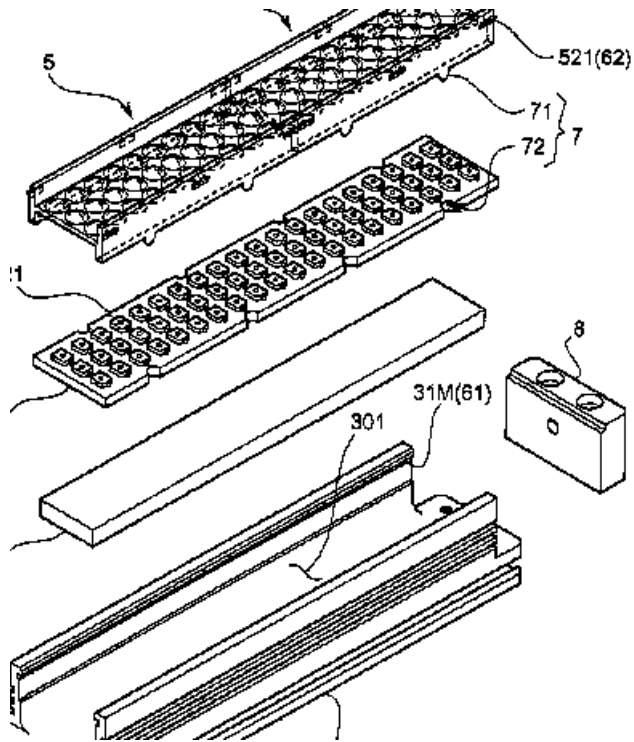
- Strip of lights for display case in shops
- Strip of lights for handrail or balustrade
- Strip of lights embedded in a flexible resin or housed within a flexible or rigid transparent hose, e.g. illuminated rope
- Flexible LED lighting rod device
- Decorative frames for holding string of light sources
- Strip of lights for under-shelf lighting

Example: Flexible strip with multiple light emitting diodes

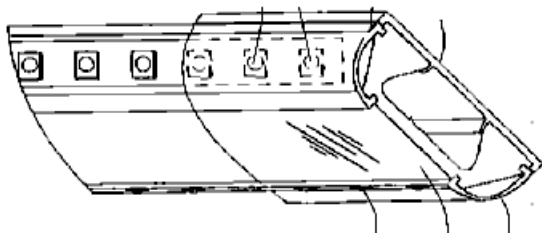


Example: Flexible illuminated device for simulating neon lighting

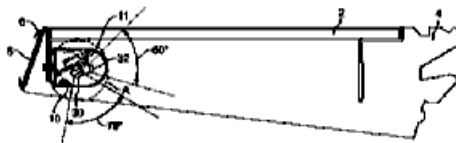




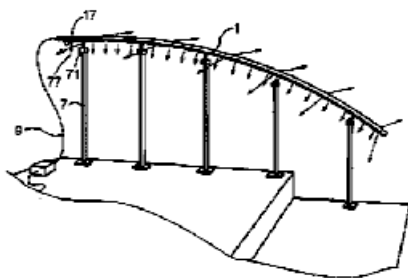
Example: Display cabinet illumination

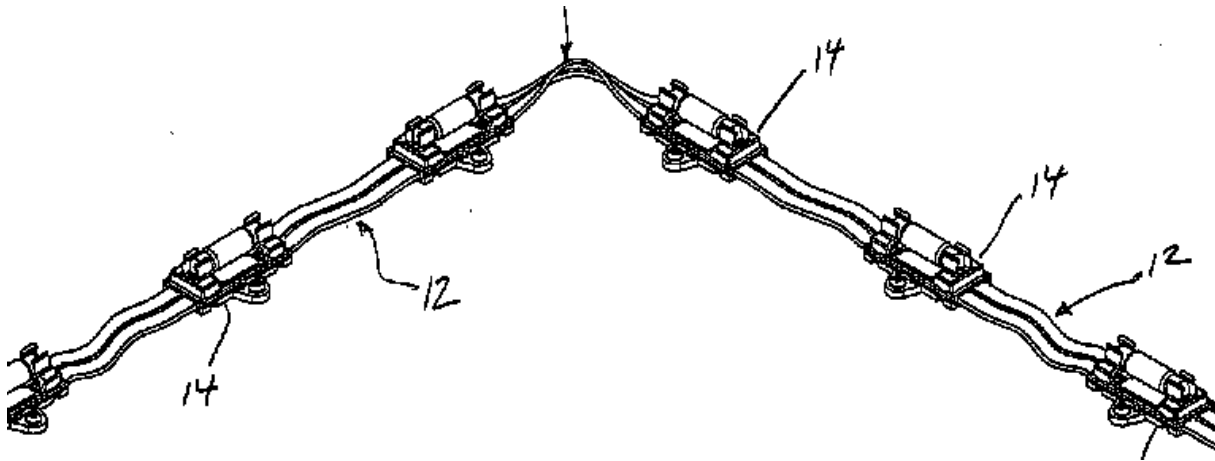


Ex.: Under-shelf lighting system



Example: Strip of lights for handrail illumination





References

Limiting references

This place does not cover:

- Elongated LED (Light Emitting Diode) lamps with connectors for retrofitting	F21K 9/27
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Lighting devices for show cases or show cabinets	A47F 3/001
Stairways, ramps; Balustrades; Handrails	E04F 11/00
Structural combinations of lighting devices with other articles, not otherwise provided fo	F21V 33/00
Channel letter lighting system	G09F 13/0404

Special rules of classification

- Strip of lights for display case in shops are classified with the appropriate Indexing Code, [F21W 2131/405](#) or ([F21W 2131/405](#) and [F21W 2131/305](#)) and forwarded for classification in [A47F 3/001](#). Sometimes also classified in [F21V 33/0012](#) if attachable to a shelf. Forward for classification in [F25D 27/00](#) if intended for refrigerated display case.

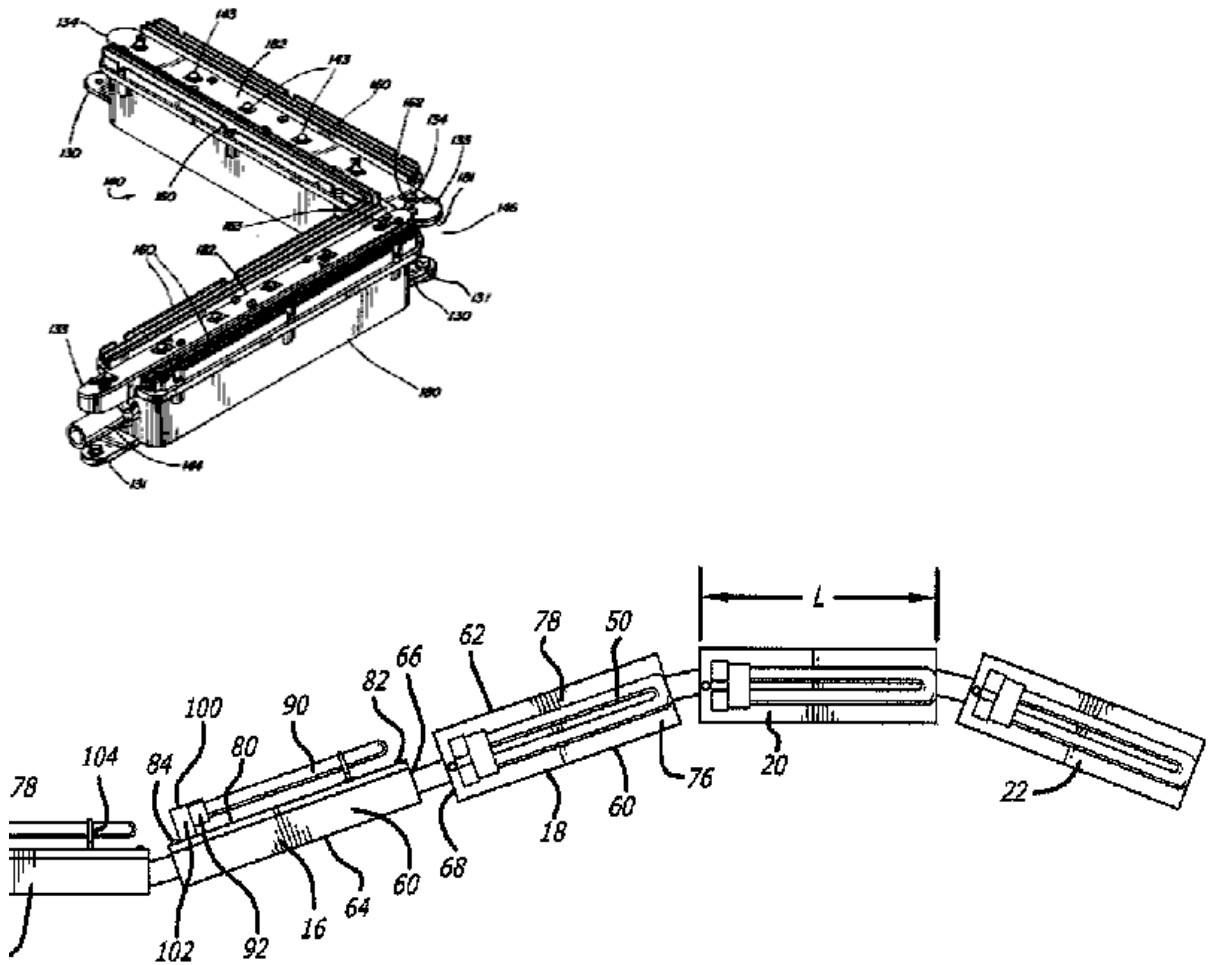
F21S 4/28

rigid, e.g. LED bars

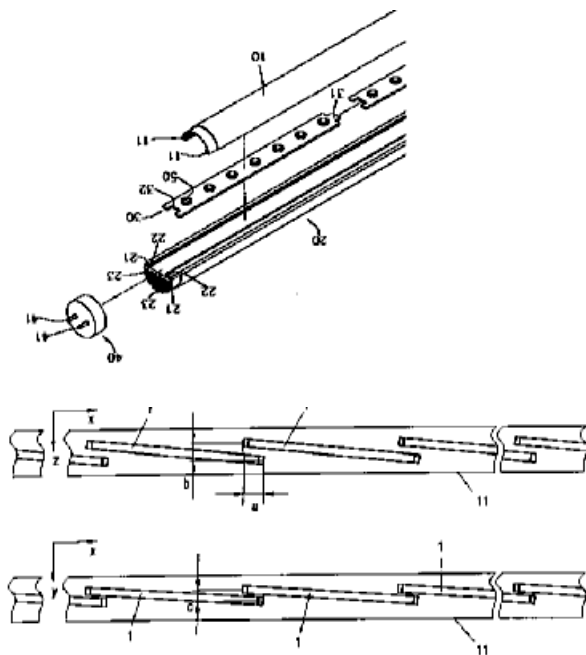
Definition statement

This place covers:

- Strips of lights, the lights being of elongated shapes
- Strips of elongated lighting devices



Example: Printed circuit board with diodes connected end-to-end



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Systems of lighting devices, e.g. of modular construction	F21S 2/00
Supporting, suspending, or attaching arrangements for lighting devices for several lighting devices in an end-to-end arrangement	F21V 21/005

Special rules of classification

In this group, it is desirable to add the Indexing Codes of [F21Y](#)

F21S 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](#)}

References

Limiting references

This place does not cover:

Electric lighting devices carried on wheeled supports without a self-contained power source	F21L 14/04
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Lighting devices with a built-in power supply; Systems employing lighting devices with a built-in power supply	F21S 9/00
Lighting devices or systems producing a varying lighting effect	F21S 10/00
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; Devices intended to be free-standing	F21S 13/12
Shades for light sources	F21V 1/00

F21S 6/001

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

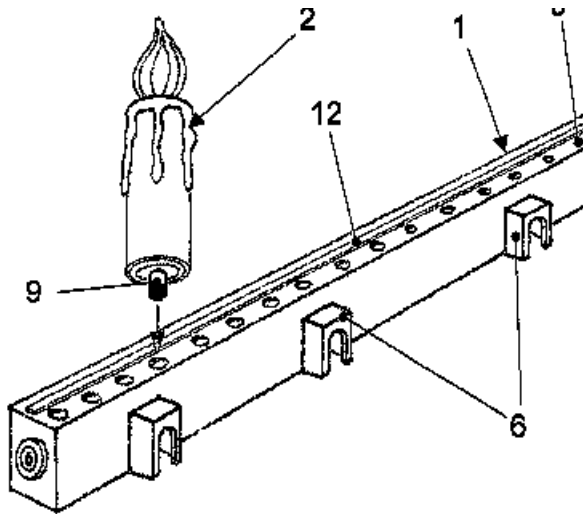
Definition statement

This place covers:

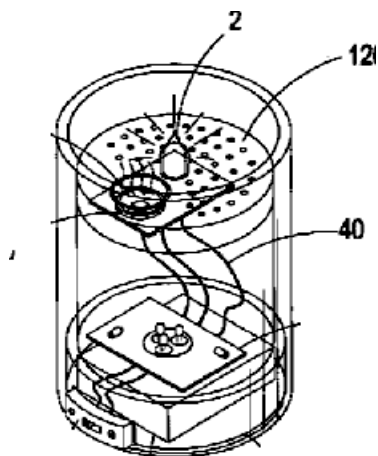
- Individual electric candle lamps
- Single battery powered candle lamps

Definition statement

Warning: this group includes also lighting devices for fixed installation and electric lamps simulating candles and forming strips of lamps.



Example: Single Candle Lamp



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Lighting devices intended for fixed installation and decorative purposes	F21S 8/00 in combination with F21W 2121/00
Lighting devices with a built-in power supply; Systems employing lighting devices with a built-in power supply	F21S 9/00
Lighting devices or systems producing a varying lighting effect changing colour or simulating flames	F21S 10/00 , F21S 10/02 , F21S 10/04
- Christmas tree decorations	A47G 33/08
Candle holders	F21V 35/00

Special rules of classification

In this group, it is desirable to add the Indexing Code [F21W 2121/00](#) when used for particular applications or related to systems for decorative purposes

F21S 8/00

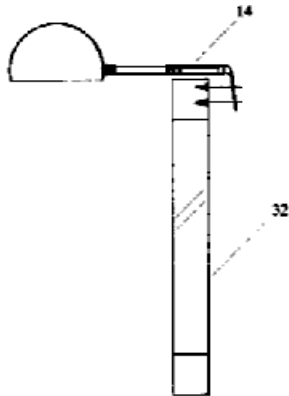
Lighting devices intended for fixed installation ([F21S 9/00](#), [F21S 10/00](#) take precedence; using a string or strip of light sources [F21S 4/00](#))

Definition statement

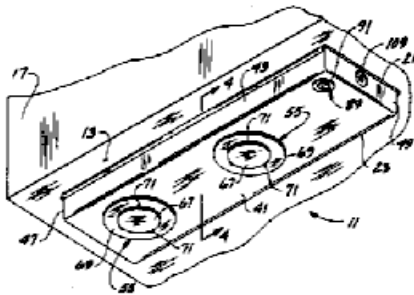
This place covers:

- for example desk lamps which are considered being a not frequently moved lighting device

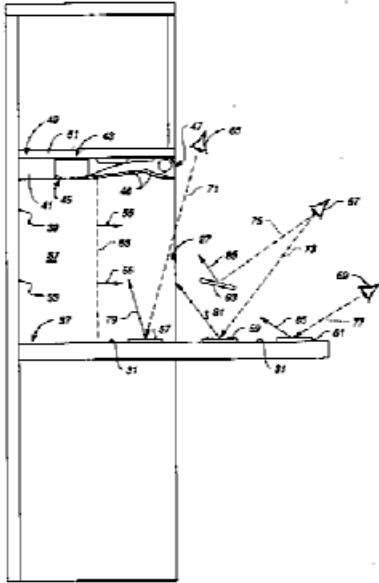
Example: Wall or picture frame mounted illuminating device



Example: Under-cabinet light fixture

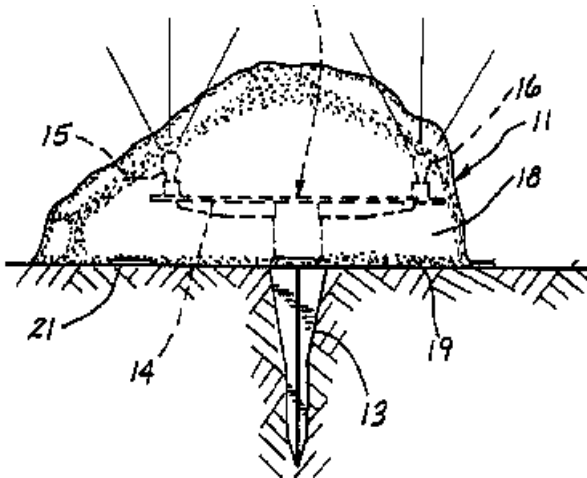


Example: Task light



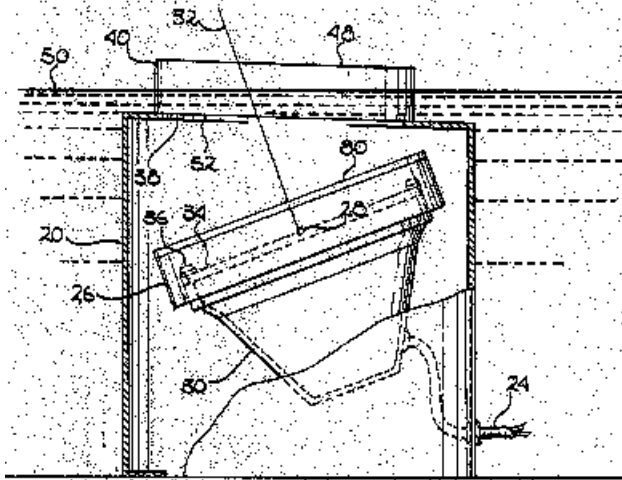
- Lighting devices for lighting inside a domestic oven
- Lighting devices for lighting the interior of a closed vessel, e.g. a pressure tank
- Lighting devices for decorative purposes

Example: A stone-like shell



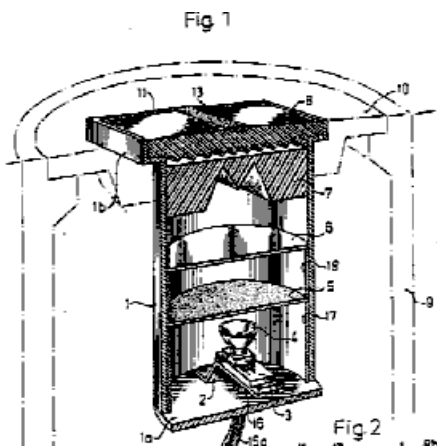
- Lighting devices for fountain lighting
- Lighting devices for swimming pool lighting

Example: Underwater lighting system

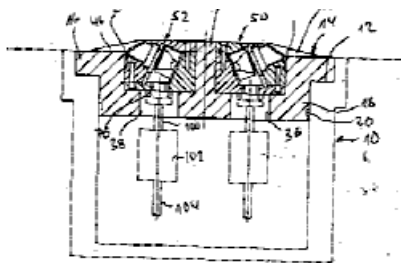


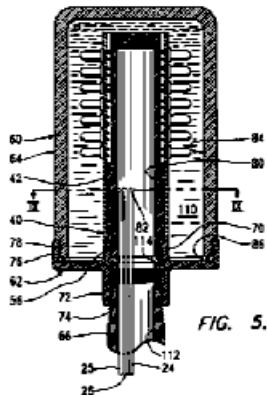
- Lighting devices for aquarium
- Lighting devices for signalling other than those adapted to be mounted on a vehicle
- Marker lights, e.g. navigation lights, airfield runway lights or beacon lights

Example: An airfield marker light ([B64F 1/20](#))

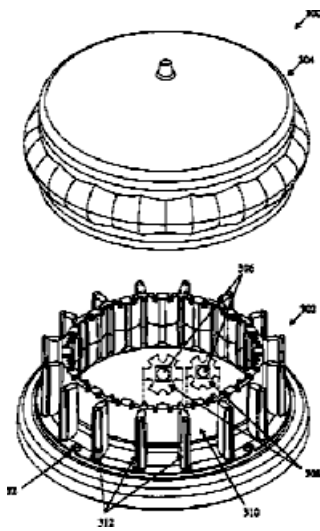


Example: Underground corridor lights for airport runways.

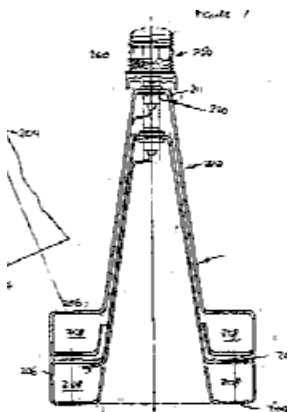




Example: Lighting device for guiding a vessel or aircraft

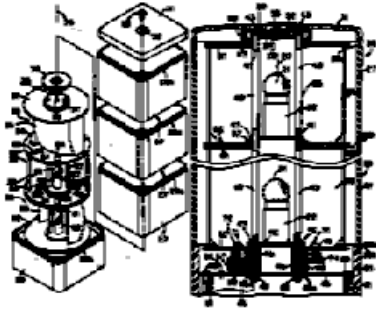


Example: Illuminated warning cone



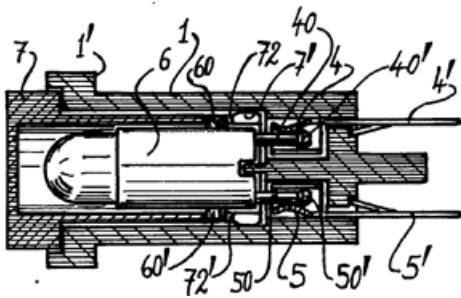
- Traffic lights; Pillar shaped lights; Lights arranged on top of each other

Example: Signalling lights on top of each other

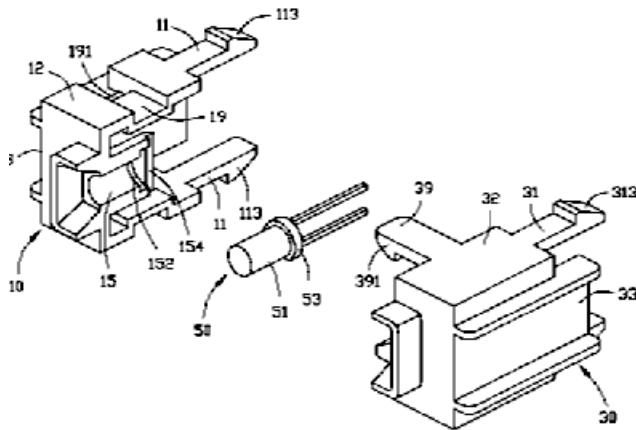


- Indicator lights, e.g. for mounting on control panels or dashboards

Example: Indicator

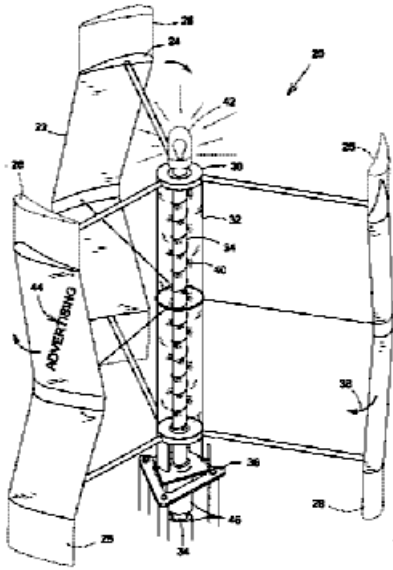


Example: Mounting apparatus for indicator device

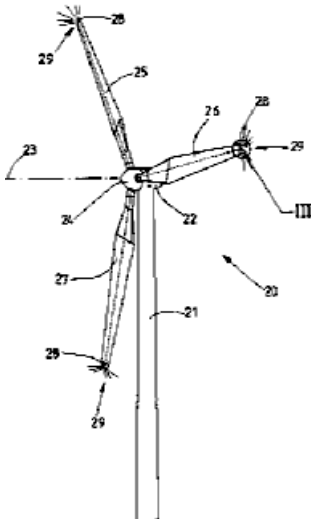


- Lamps on antennas or powerlines or aerial markers

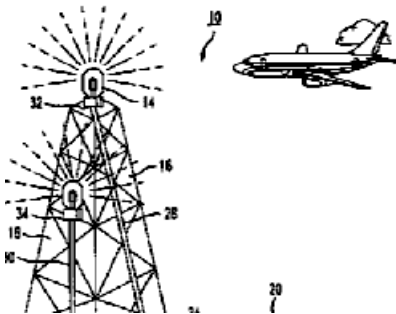
Example: Wind-powered generator and blade therefor



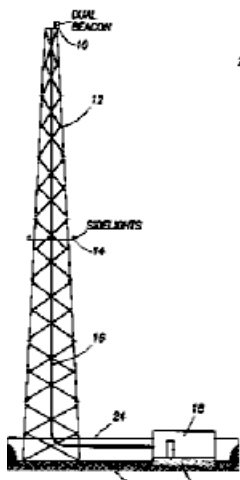
Example: Wind powered generator with aircraft warning lights



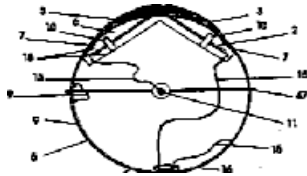
Example: Radio tower lighting system



Example: Dual beacon for marking obstructions

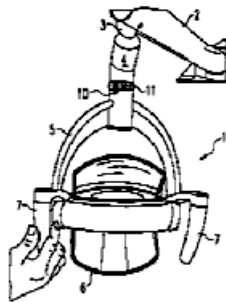


Example: Intermediate voltage cable marker with enhanced conspicuity



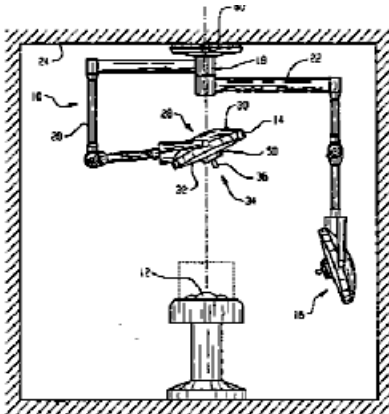
- Lighting devices for illuminating an indoor working place
- Lighting devices for dentistry

Example: Dental lamp



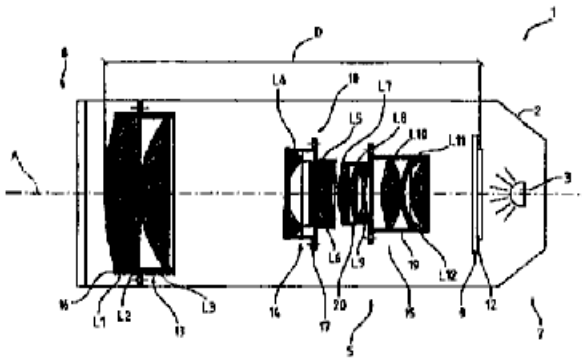
- Lighting devices for medicine or surgery, i.e. fixed installation lighting apparatus in surgery rooms to light the surgeon's working places

Example: Surgical lighting system

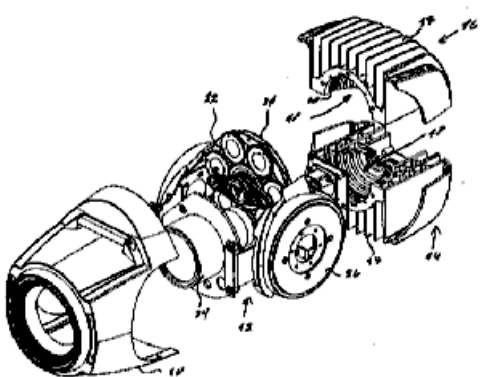


- Lighting devices for stage, circus, studio, theatre or indoor arena lighting

Example: Washlight stage lighting fixture

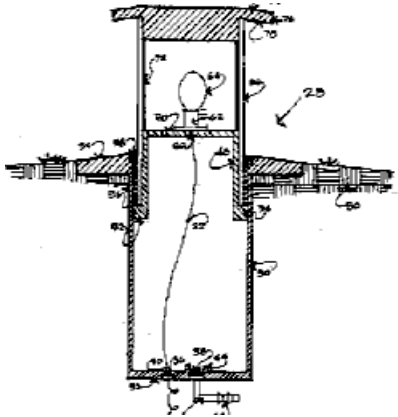


Example: Moving head projector for use in exhibitions, theatres or shops

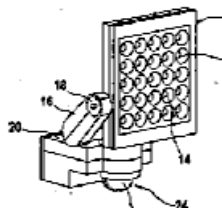


- Lighting devices for outdoor lighting, e.g. of tunnels, building, gardens, arenas, sport fields or gas stations

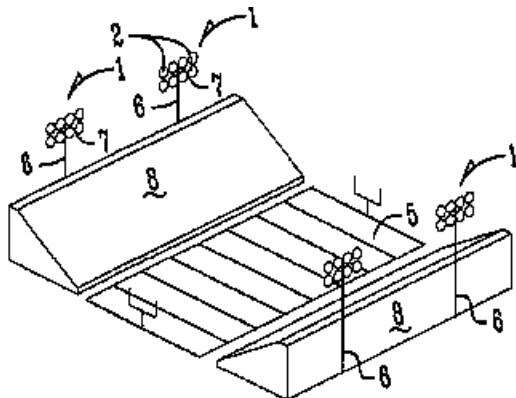
Example: Garden lighting device attachable to ground



Example: Wall lighting device with motion detector



Example: Sports lighting fixture



- Lighting devices for lighting roadways or streets not provided in [F21S 8/06](#), [F21S 8/08](#), i.e. lighting devices for which the supports of the lighting devices are not disclosed

References

Limiting references

This place does not cover:

- When related to closely lighting a limited area:

Signs, boards or panels, illuminated from behind the insignia	G09F 13/04
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- When related to lighting devices for fountain lighting or lighting devices for swimming pool lighting:

Structural combinations of lighting devices with sanitary equipments, e.g. shower head, water tap	F21V 33/004
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Limiting references

- When related to lighting devices for signalling other than those adapted to be mounted on a vehicle

Arrangements or adaptations of optical signalling or lighting devices, the devices being mounted on a shaft and primarily intended to indicate the vehicle	B60Q 1/2657
Triangle warning arrangements	B60Q 7/00
Road hazard warning devices, e.g. for safety barrier systems	E01F 9/00

- When related to lighting devices for stage, circus, studio, theatre or indoor arena lighting

Apparatus or arrangements for projecting photographs; Projectors or projection-type viewers	G03B 21/00
Details of colour television system; Projection devices for colour picture display	H04N 9/31

Informative references

Attention is drawn to the following places, which may be of interest for search:

Systems of lighting devices, e.g. of modular construction	F21S 2/00
Lighting devices or systems using a string or strip of light sources	F21S 4/00
Lighting devices with a built-in power supply; Systems employing lighting devices with a built-in power supply	F21S 9/00
Lighting devices or systems producing a varying lighting effect	F21S 10/00
Details of lighting devices	F21V

- When related to closely lighting a limited area:

Lighting devices intended to be free standing, e.g. desk lamps	F21S 6/00
Structural combination of lighting devices with furniture	F21V 33/0012

- When related to light inside a domestic oven:

Bakers'ovens; Means for illuminating ovens	A21B 3/10
Illumination for oven cavities	F24C 15/008
Aspects relating to lighting devices in the microwave cavity	H05B 6/6444

- When related to lighting devices for decorative purposes

String of lamps connected with electric wires	F21S 4/10
Electric candle lights	F21S 6/001
Lighting devices or systems producing a varying lighting effect	F21S 10/00
Christmas tree decorations	A47G 33/08
Designs or pictures characterised by special or unusual light effects	B44F 1/00

Informative references

- When related to lighting devices for fountain lighting or lighting devices for swimming pool lighting:

Lighting devices or systems producing a varying lighting effect using liquids, e.g. water	F21S 10/002
Spaying apparatus	B05B
Water projection screens	G03B 21/30

- When marker lights, e.g. navigation lights, airfield runway lights or beacon lights

Light signals for guiding railway	B61L 5/18
Arrangement of optical beacons for ground or aircraft-carrier-deck-installations	B64F 1/20
Illuminated marker posts or bollards	E01F 9/617
Arrangement of road signs or traffic signals three dimensional free-standing devices, e.g. traffic cones, foldable or inflatable devices	E01F 9/654

- When traffic lights or pillar shaped lights or lights arranged on top of each other

Illuminated marker posts or bollards	E01F 9/617
Traffic light control systems for road vehicles	G08G 1/095

- When indicator lights, e.g. for mounting on control panels or dashboards

Dashboards	B60K 37/00
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- When lamps on antennas or powerlines or aerial markers

Wind turbines	F03D 80/00
Means for the lighting or illuminating of aerials, e.g. for purpose of warning	H01Q 1/06

- When lighting devices for dentistry

Instruments, implements or accessories for surgery or diagnosis; Devices for illuminating a surgical field	A61B 90/30
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- When lighting devices for medicine or surgery

Devices for illuminating a surgical field	A61B 90/30
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- When related to lighting devices for stage, circus, studio, theatre or indoor arena lighting

Lighting devices or systems producing a varying lighting effect	F21S 10/00
Controlling the distribution of the light emitted by adjustment of elements	F21V 14/00
Adjustable mounting of a lighting device	F21V 21/14

Special rules of classification

In this group, it is desirable to add the Indexing Codes of subclasses [F21W 2131/00](#) and/or classification in [F21V 33/00](#) when applicable,

- When related to closely lighting a limited area like a working place: [F21W 2131/402](#), lighting a painting: [F21W 2131/304](#)
- When related to lighting devices for lighting inside a domestic oven it is desirable to add the Indexing Codes of [F21W 2131/307](#) -This subject-matter should not to be classified in [F21V 33/0044](#)
- When related to lighting devices for lighting the interior of a closed vessel, e.g. a pressure tank it is desirable to add the Indexing Code [F21W 2131/411](#)
- When related to lighting devices for decorative purposes it is desirable to add the Indexing Codes of [F21W 2121/00](#)
- When related to lighting devices for fountain lighting it is desirable to add the Indexing Code [F21W 2121/02](#) - Documents classified here usually do not get classification in [F21S 8/033](#) , [F21S 8/02](#) or [F21S 8/04](#)
- When related to lighting devices for swimming pool lighting it is desirable to add the Indexing Code of [F21W 2131/401](#) - Documents classified here usually do not get classification in [F21S 8/033](#) , [F21S 8/02](#) or [F21S 8/04](#)

When related to lighting devices for aquarium it is desirable to add the Indexing Code of [F21W 2131/308](#) - Documents classified here usually do not get classification in [F21S 8/033](#) , [F21S 8/02](#) or [F21S 8/04](#)

When related to lighting devices for signalling other than those adapted to be mounted on a vehicle it is desirable to add the Indexing Code of [F21W 2111/00](#)

- When marker lights, e.g. navigation lights, airfield runway lights or beacon lights

it is desirable to add the Indexing Code of [F21W 2111/06](#) or [F21W 2111/02](#)

- When traffic lights or pillar shaped lights or Lights arranged on top of each other it is desirable to add the Indexing Code of [F21W 2111/02](#)
- When indicator lights, e.g. for mounting on control panels or dashboards it is desirable to add the Indexing Code of [F21W 2111/00](#)
- When lamps on antennas or powerlines or aerial markers it is desirable to add the Indexing Code [F21W 2111/00](#) or [F21W 2111/06](#)
- When lighting devices for illuminating an indoor working place it is desirable to add the Indexing Code [F21W 2131/402](#)
- When lighting devices for dentistry it is desirable to add the Indexing Code [F21W 2131/202](#)
- When lighting devices for medicine or surgery it is desirable to add the Indexing Code [F21W 2131/205](#)
- When lighting devices for stage, circus, studio, theatre or indoor arena lighting it is desirable to add the Indexing Code [F21W 2131/406](#) - When the device uses variable lighting effect a class should be given also in [F21S 10/00](#)

When lighting devices for outdoor lighting, e.g. of tunnels, building, gardens, arenas, sport fields or gas stations it is desirable to add the Indexing Code of [F21W 2131/10](#)

When lighting devices for lighting roadways or streets not provided in [F21S 8/06](#), [F21S 8/08](#) it is desirable to add the Indexing Code [F21W 2131/103](#)

F21S 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 [B60Q 1/245](#))}

References**Limiting references**

This place does not cover:

Projector or searchlight on land vehicles	B60P 3/18
Searchlight mounted on a vehicle	B60Q 1/245

Informative references

Attention is drawn to the following places, which may be of interest for search:

Investigating or analysing materials by the use of optical means; Specially adapted optical and illumination features	G01N 21/8806
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F21S 8/006

{Solar simulators, e.g. for testing photovoltaic panels}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Arrangements of light sources specially adapted for photometry; standard sources, also using luminescent or radioactive material-	G01J 1/08
---	---------------------------

F21S 8/02

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

References**Limiting references**

This place does not cover:

Lighting devices intended for fixed installation specially adapted for vehicles	F21S 41/00 - F21S 45/00
---	---

Informative references

Attention is drawn to the following places, which may be of interest for search:

Ceilings with means for hanging lighting fixtures or other appliances to the framework of the ceiling	E04B 9/006
Recessed wall lighting device for swimming pools	F21W 2131/401

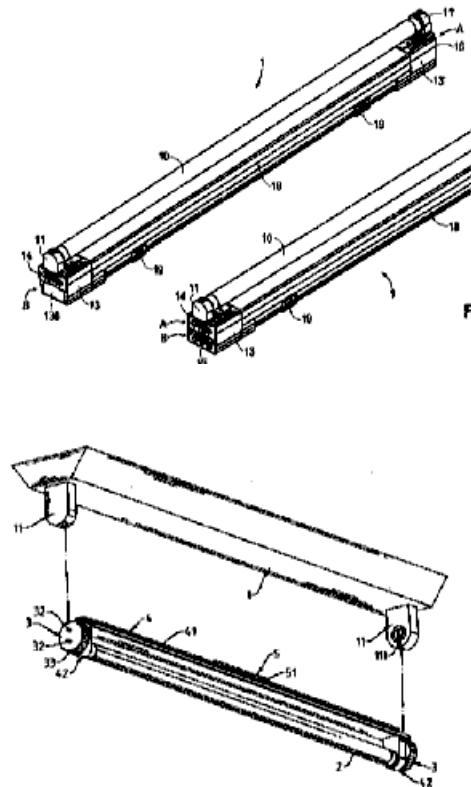
F21S 8/031

{the device consisting essentially only of a light source holder with an exposed light source, e.g. a fluorescent tube}

Definition statement

This place covers:

- Elongated light source holding device for which the light source is mounted externally



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Fastening of light sources or lamp holders of straight tubular light sources, e.g. straight fluorescent tubes	F21V 19/008
Line connectors; current collectors	H01R

Special rules of classification

In this group, it is desirable to add the Indexing Code s of [F21Y 2103/00](#)

F21S 8/032

{the surface being a floor or like ground surface, e.g. pavement}

References

Limiting references

This place does not cover:

Free standing lamps on a floor	F21S 6/00
Fixed lighting devices of recess mounted types in a floor	F21S 8/022
Illuminated carpets, stairs	F21V 33/006

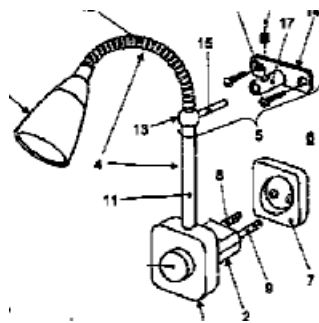
F21S 8/035

{by means of plugging into a wall outlet, e.g. night light}

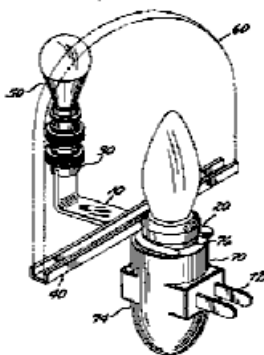
Definition statement

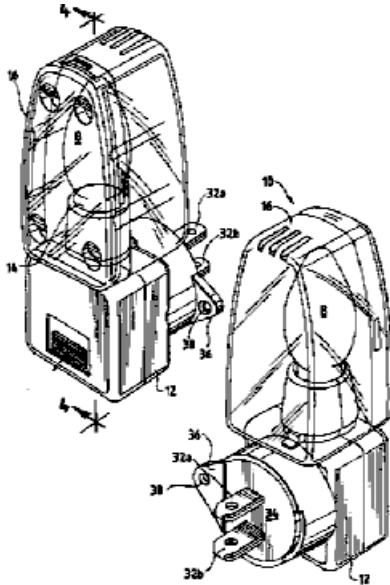
This place covers:

Lighting devices which are intended to be plugged into a power outlet



Example: Night light





References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Apparatus for deodorisation of air using gaseous or vaporous substances using substances evaporated in the air by heating or combustion	A61L 9/03
Structural association of built-in electrical components with a built-in light source	H01R 13/717
Coupling devices in which a holder is adapted for supporting apparatus to which its counterpart is attached	H01R 33/00

Special rules of classification

These plugs in devices are generally not to be classified in [F21V 21/002](#) nor [F21V 21/08](#)

F21S 8/037

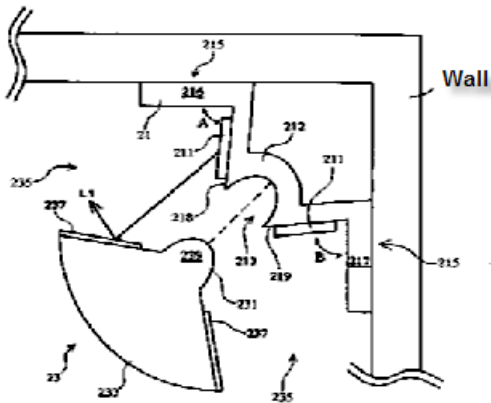
{for mounting in a corner, i.e. between adjacent walls or wall and ceiling}

Definition statement

This place covers:

- Corner lighting device

Example: Indirect wall mounted lighting apparatus



F21S 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})

References

Limiting references

This place does not cover:

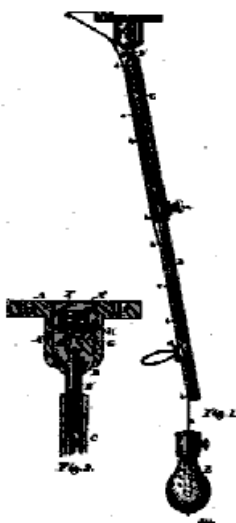
Lighting device essentially made of an elongated section for suspending at least one linear light source	F21S 8/033
--	----------------------------

F21S 8/06

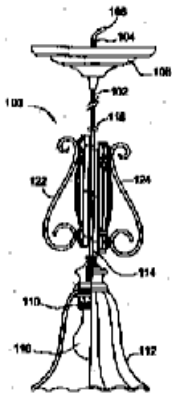
by suspension

Definition statement

This place covers:



Example: Hanging light fixture



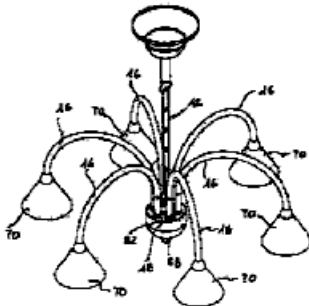
F21S 8/065

{multi-branched, e.g. a chandelier}

Definition statement

This place covers:

Example: Ceiling chandelier



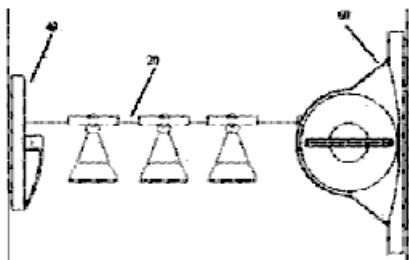
F21S 8/068

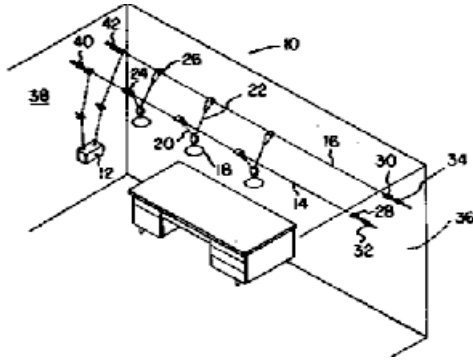
{from a stretched wire}

Definition statement

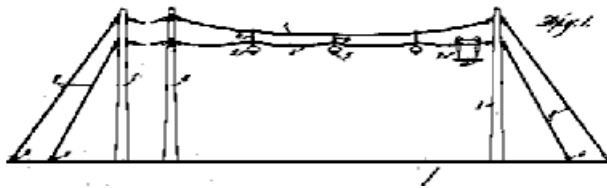
This place covers:

Example: A suspended cable lighting system





Example: Catenary lighting apparatus



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of lighting devices suspended from a cable or suspension lines	F21V 21/008
--	-----------------------------

F21S 8/08

with a standard {([F21S 6/00](#) takes precedence)}

References

Limiting references

This place does not cover:

Free standing lighting devices with a lamp housing distant from the floor or the ground via a support, e.g. standing lamp for ambient light	F21S 6/005
Spring-loaded poles fixed at both ends	F21V 21/13

Informative references

Attention is drawn to the following places, which may be of interest for search:

Lighting device from a stretched wire	F21S 8/068
---------------------------------------	----------------------------

Special rules of classification

In this group, it is desirable to add the Indexing Codes of [F21W 2131/10](#) whenever applicable

F21S 9/00

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

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

- Electric portable lighting devices with self-contained electric batteries or cells	F21L 4/00
--	---------------------------

F21S 9/02

the power supply being a battery or accumulator

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

- Alarm systems using visible light sources	G08B 5/36
Alarm systems using flashing light	G08B 5/38
Batteries forming a whole with or incorporated in or fixed to the electronic appliance	H01M 50/20
Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries	H02J 7/00

F21S 9/03

rechargeable by exposure to light

Definition statement

This place covers:

- Lighting devices comprising solar cells and rechargeable batteries or capacitors
- Lighting devices using solar cells to get electric power supply from an artificial light, i.e. not using solar energy
- Lighting devices having no power supply or accumulator but directly powered by the energy produced by solar cells, i.e. device not using electricity storing means

Relationships with other classification places

- Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries are not covered by this group, they could be found in [H02J 7/00](#)

Special rules of classification

- Contrary to the title, documents having no power supply nor accumulator but directly powered by the electric energy produced by solar cells, i.e. device not using electricity storing means, are classified in this group

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "solar cell", "photovoltaic cell" and "solar panel"

F21S 9/04

the power supply being a generator

Definition statement

This place covers:

- Lighting devices with power supply being a wind turbine
- Lighting devices with power supply being manual actuators being an electric generator

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

- Dynamo-electric machine	H02K
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F21S 10/00

Lighting devices or systems producing a varying lighting effect

References

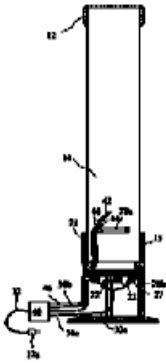
Informative references

Attention is drawn to the following places, which may be of interest for search:

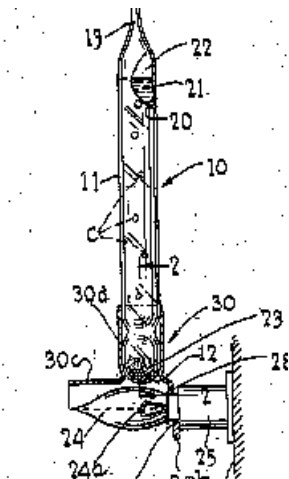
Christmas tree decorations	A47G 33/08
Designs or pictures characterised by special or unusual light effects	B44F 1/00
Controlling the distribution of the light emitted by adjustment of element	F21V 14/00
Decorative lighting devices	F21W 2121/00

F21S 10/002**{using liquids, e.g. water}****Definition statement***This place covers:*

Illustrative example of subject matter classified in this group:



or



Decorative lamp with a lighted water container/reservoir.

References**Informative references***Attention is drawn to the following places, which may be of interest for search:*

Lighting devices structurally combined with water taps or shower heads	F21V 33/004
Decorative lighting devices intended for fixed installation for fountain lighting; for swimming pool lighting	F21W 2121/02 , F21W 2131/401

Special rules of classification

- In this group, it is desirable to add the Indexing symbol [F21W 2121/00](#) as additional information when the varying lighting effect is decorative.

F21S 10/005

{using light guides (light guides specially adapted for lighting devices [G02B 6/0001](#))}

References**Limiting references**

This place does not cover:

Light guides specially adapted for lighting devices	G02B 6/0001
---	-----------------------------

F21S 10/02

changing colors {([F21S 10/002](#) - [F21S 10/007](#), [F21S 10/04](#) take precedence)}

References**Limiting references**

This place does not cover:

Lighting devices or systems producing a varying lighting effect using liquids	F21S 10/002
Lighting devices or systems producing a varying lighting effect using rotating disks	F21S 10/007
Lighting devices or systems producing a varying lighting effect simulating flames	F21S 10/04

Informative references

Attention is drawn to the following places, which may be of interest for search:

Light filter for producing coloured light	F21V 9/08
---	---------------------------

F21S 10/04

simulating flames

Relationships with other classification places

[F24C 7/004](#): Stoves or ranges heated by electrical energy (electric heating elements or arrangements [H05B](#)); Stoves ([F24C 7/02](#) - [F24C 7/10](#) take precedence) simulating flames

Auxiliaries for producing special effects on stages, or in circuses or arenas are classified in [A63J 5/023](#), but illuminating arrangements therefor are classified in [F21W 2131/406](#). [A63J 5/02](#) further covers arrangements for making stage effects and auxiliary stage appliances for making fire and flame simulations.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

- Electric candle lamps	F21S 6/001
- Stoves simulating flames	F24C 7/004

Special rules of classification

In this group, it is desirable to add the Indexing Code of [F21W 2121/00](#)

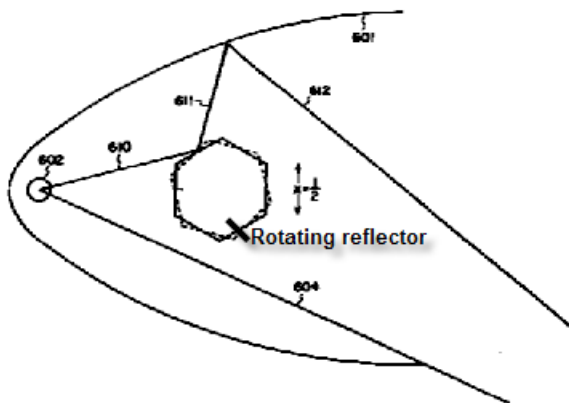
F21S 10/06

flashing, e.g. with rotating reflector or light source {(signalling lighting devices mounted on vehicles [B60Q 1/26](#))}

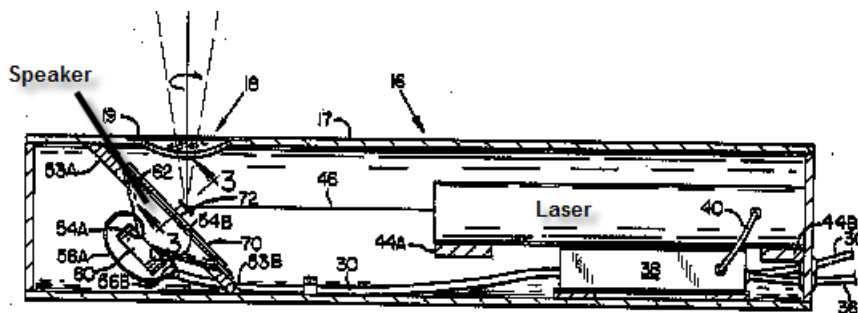
Definition statement

This place covers:

Example: Rotating reflector flashlight



Example: Apparatus for generating light patterns responsive to audio frequency input signals



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Changing the characteristics or distribution of the light emitted by movement of light sources	F21V 14/02
Changing the characteristics or distribution of the light emitted by movement of reflectors	F21V 14/04

F21S 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](#))}

Definition statement

This place covers:

Example: Daylight deflecting device for use in double glass window for illuminating of building room

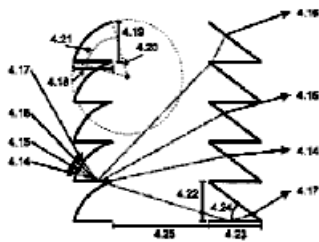
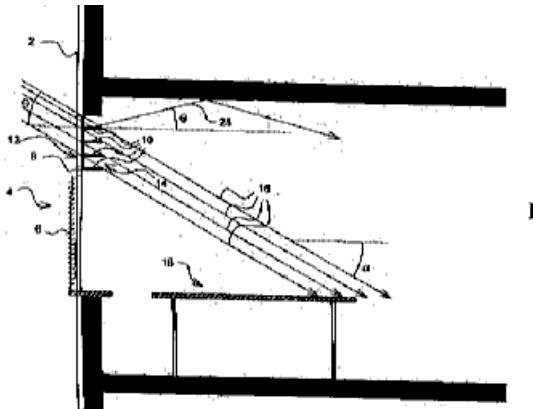


Fig. 4a

Example: Daylight illumination system



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Building arrangements in general, building details	E04
Sky-lights; Domes; Ventilating sky-light	E04D 13/03
Windows or the like	E06B
Light guides specially adapted for lighting devices or systems	G02B 6/0001

F21S 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

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

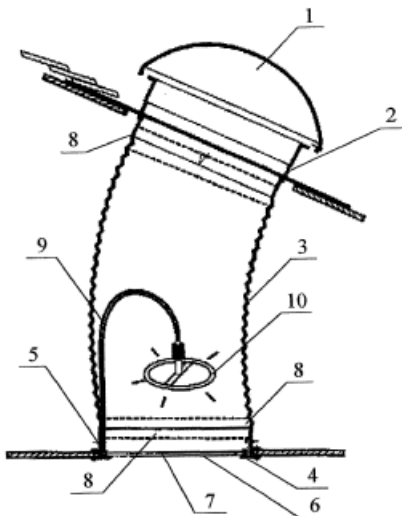
Candle per se	C11C 5/006 , C11C 5/008
Candle holder	F21V 35/00

F21S 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

Definition statement

This place covers:



F21S 43/26211

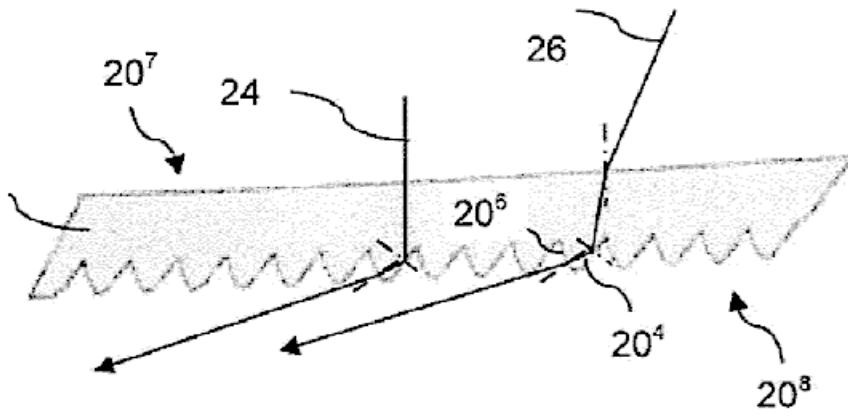
{redirecting, i.e. substantially only changing light propagation direction}

Definition statement

This place covers:

Illustrative examples of subject matter classified in this place:

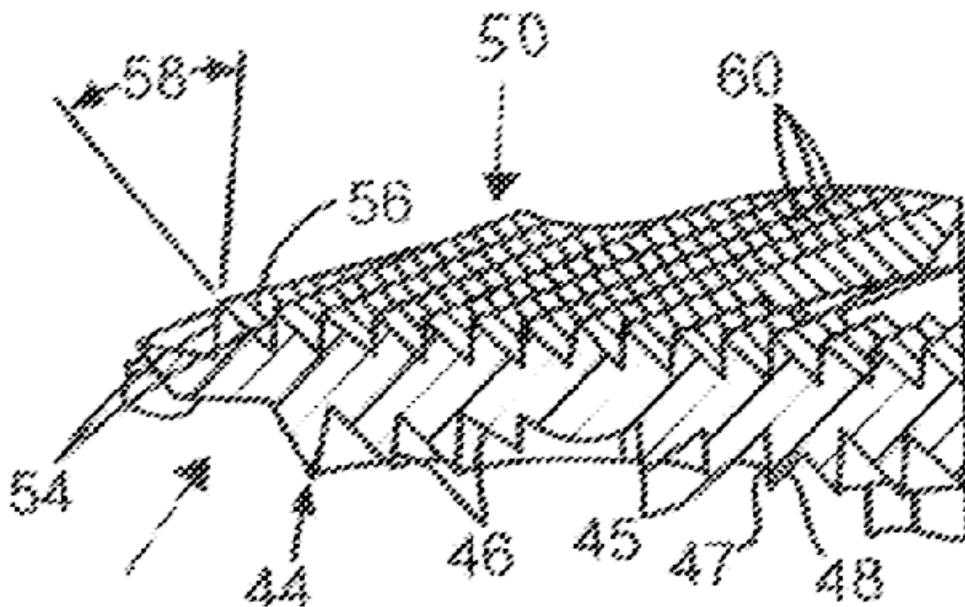
1.



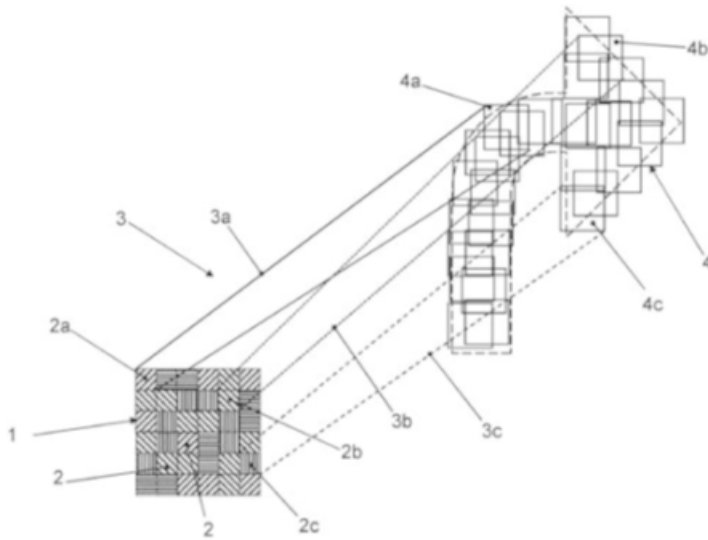
2.



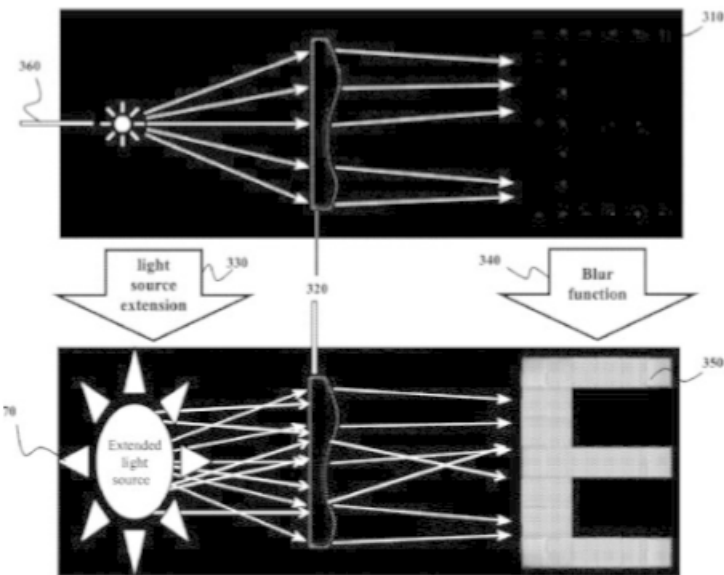
3.



4.



5.



F21S 43/26221

{dividing, unifying or reunifying}

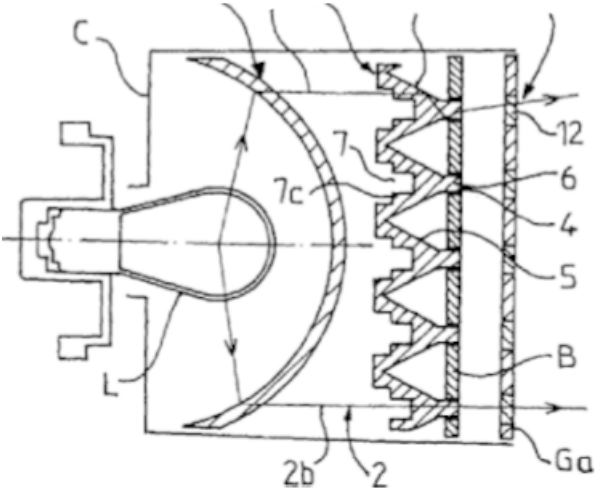
Definition statement

This place covers:

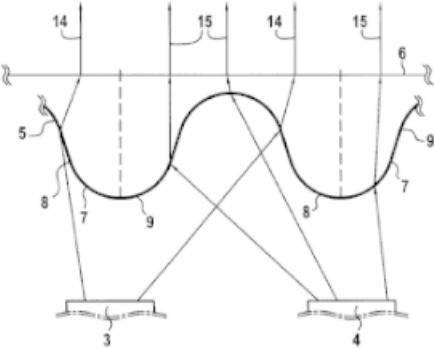
Dividing a single light beam into a plurality of separate light beams exiting an outbound surface, unifying or reunifying from the plurality of separate light beams on an inbound surface to a single beam exiting the outbound surface.

Illustrative examples of subject matter classified in this place:

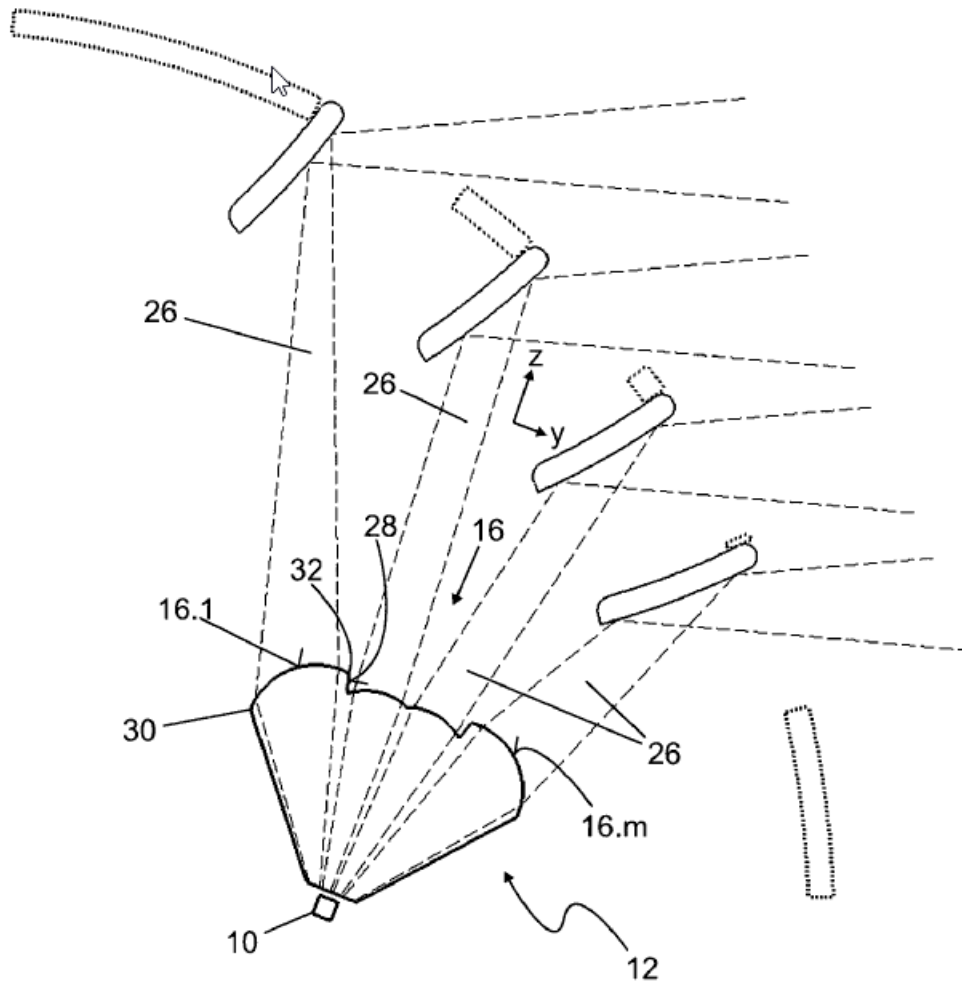
1.



2.



3.



F21S 43/26231

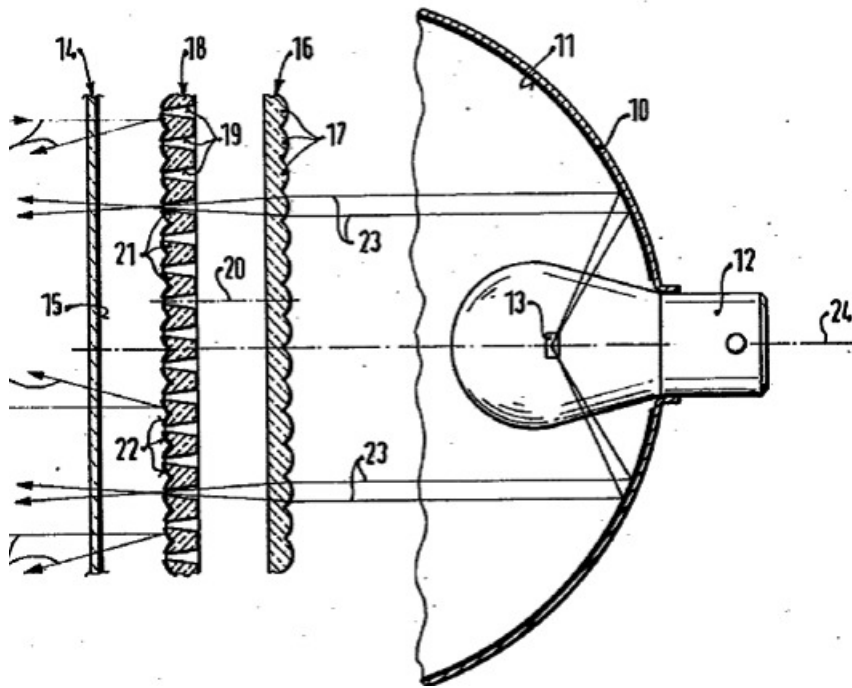
{collimating, focusing, condensing or projecting beams, e.g. projection lenses or Fresnel lenses}

Definition statement

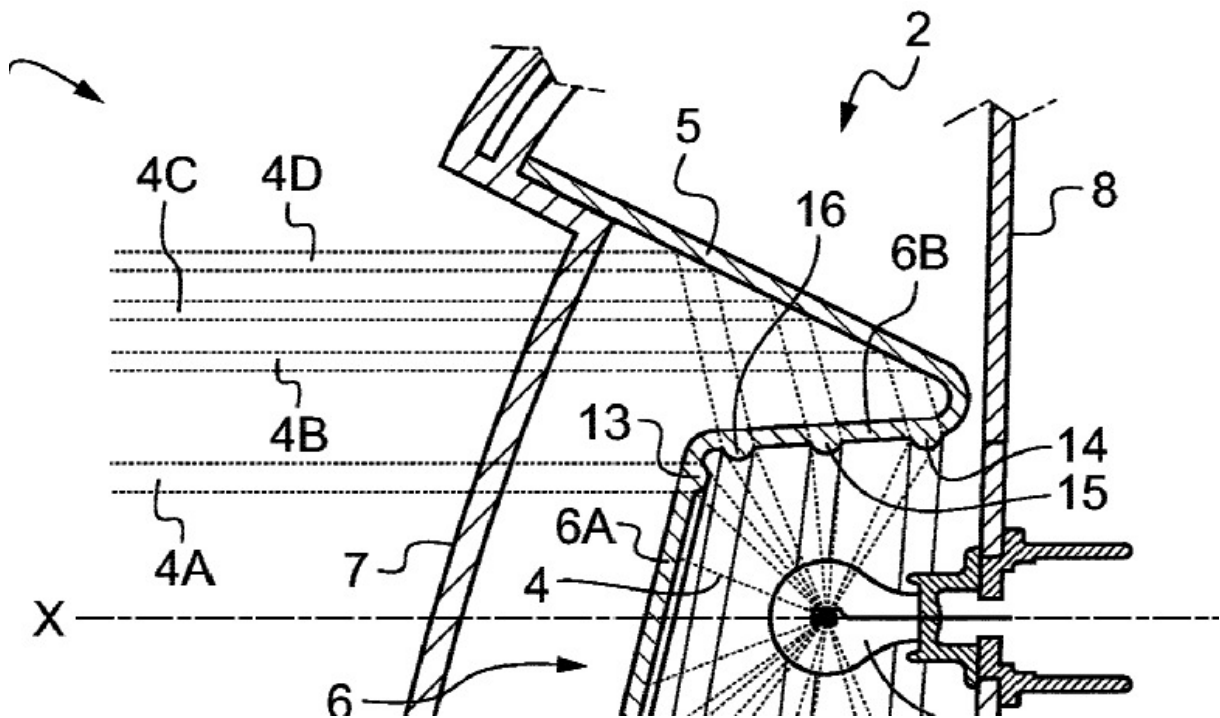
This place covers:

Illustrative examples of subject matter classified in this place:

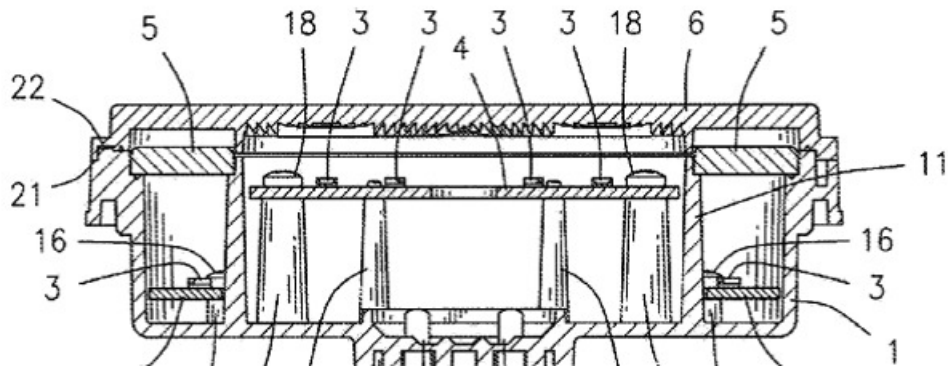
1.



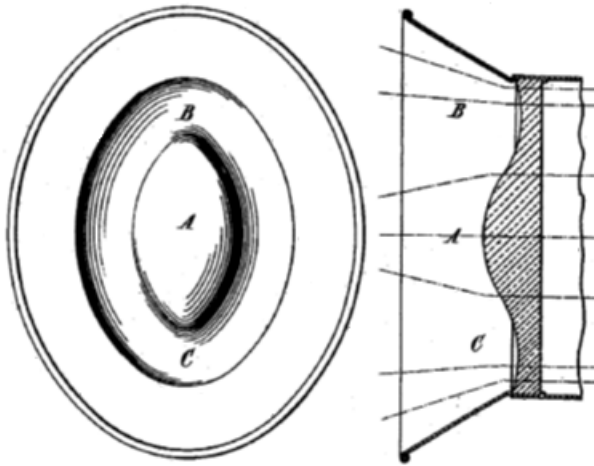
2.



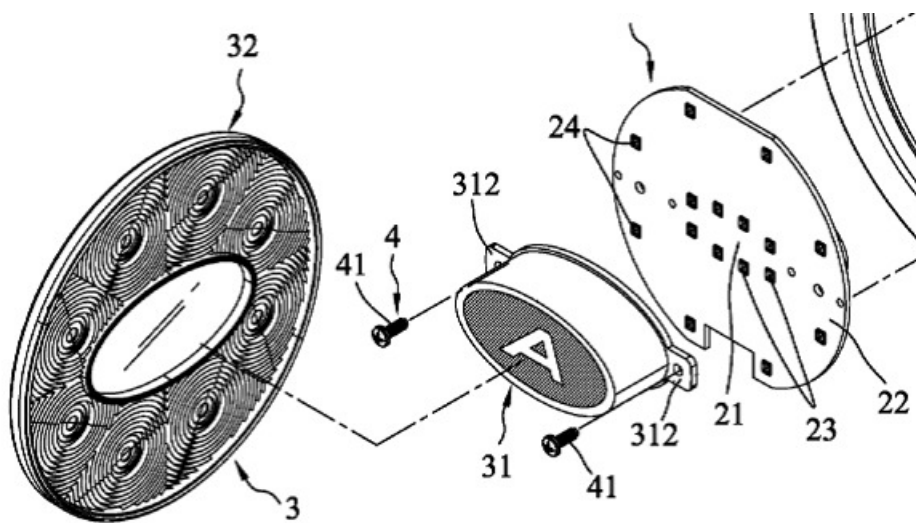
3.



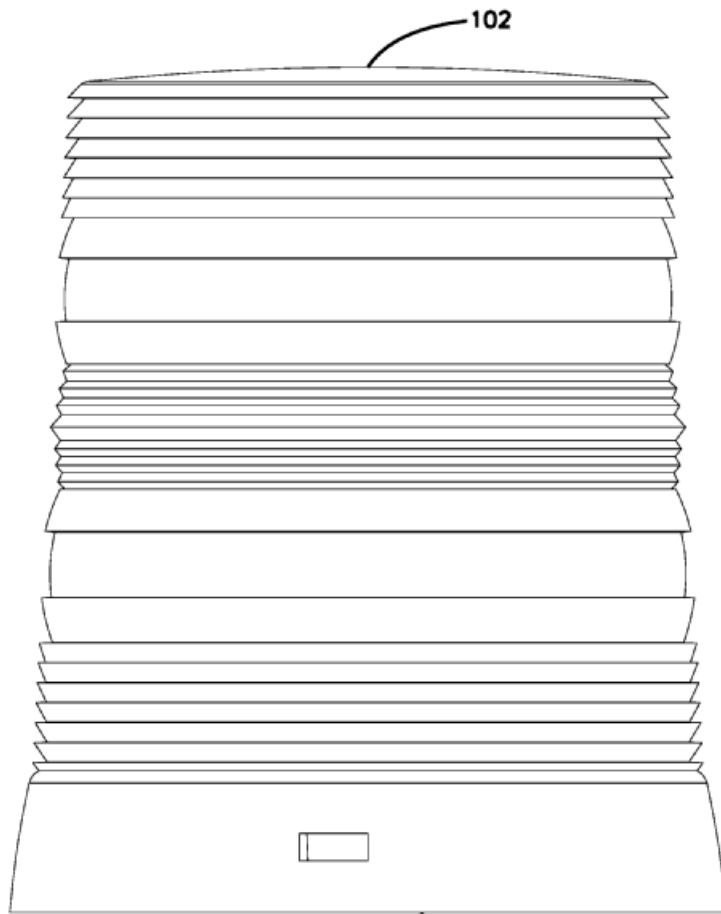
4.



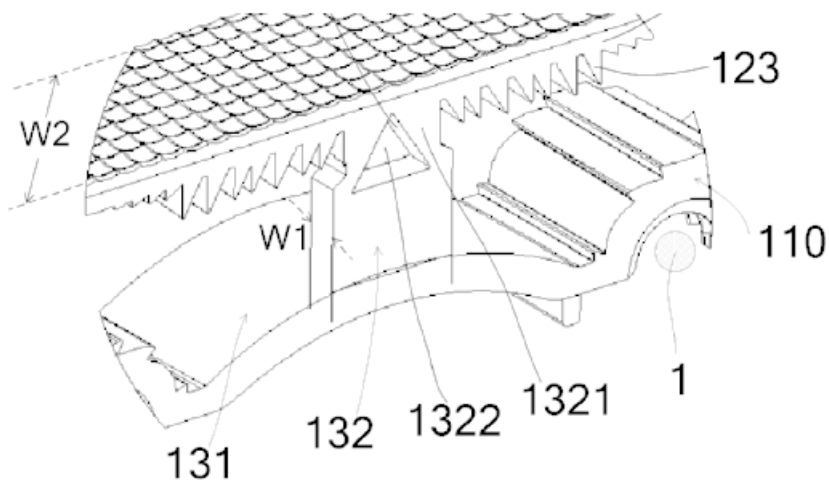
5.



6.



7.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Total internal reflection [TIR] reflectors	F21S 43/315
Total internal reflection [TIR] collimators	F21S 43/402

Collimators in general

[G02B 27/30](#)

F21S 43/26241

{diffusing, scattering or spreading}

Definition statement

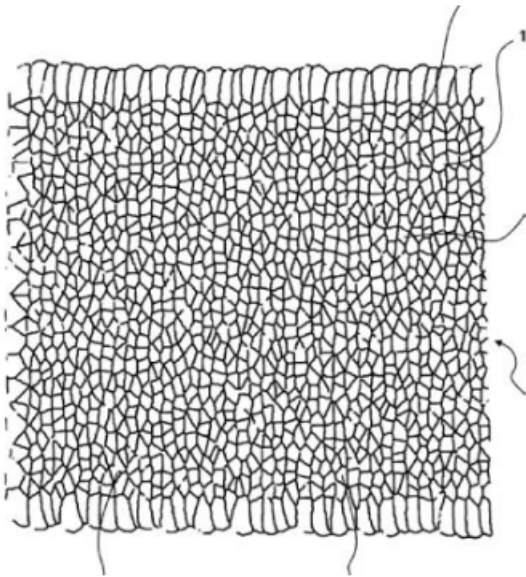
This place covers:

Refractor light beam shaping surfaces

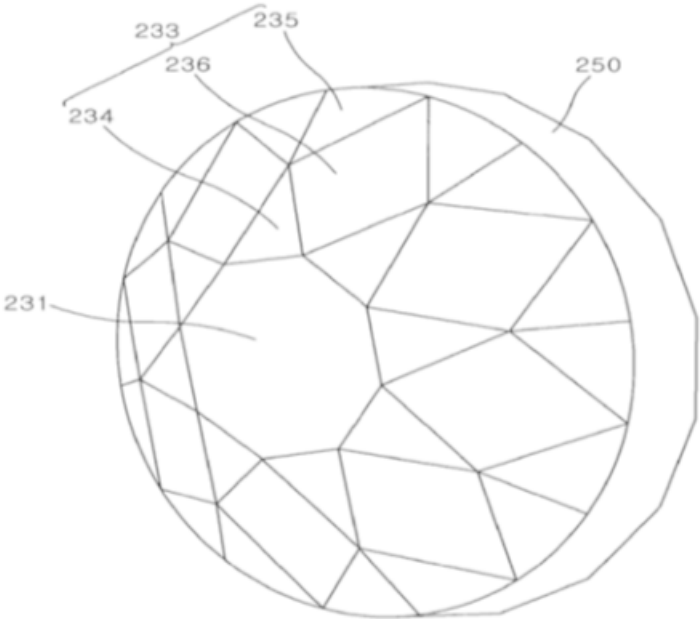
- being grained;
- being corrugated;
- comprising pillows;
- comprising random structures;
- comprising cavities.

Illustrative examples of subject matter classified in this place:

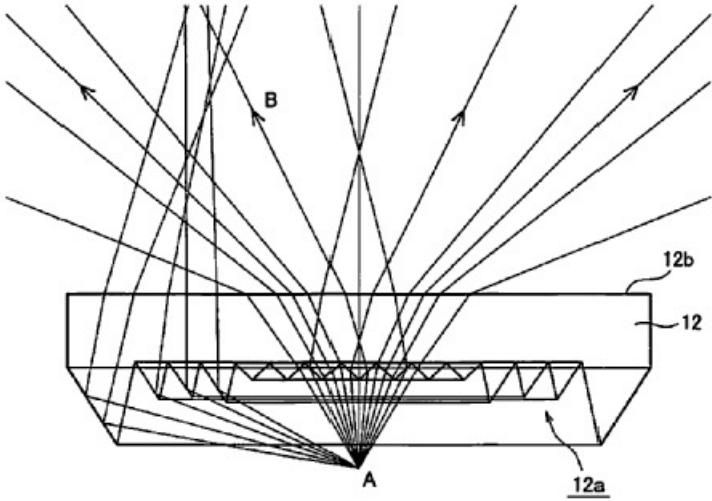
1.



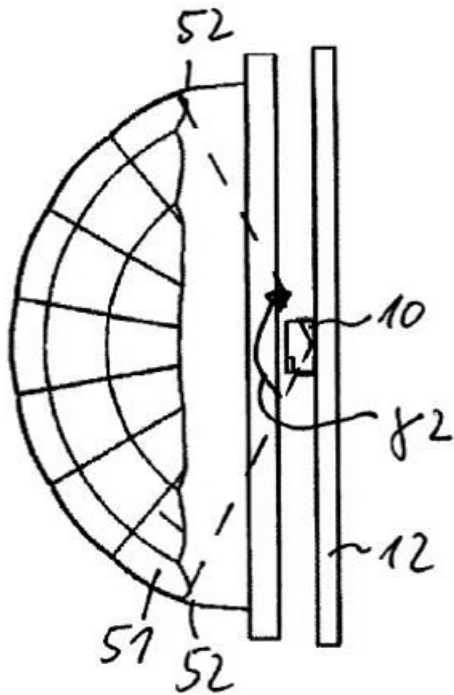
2.



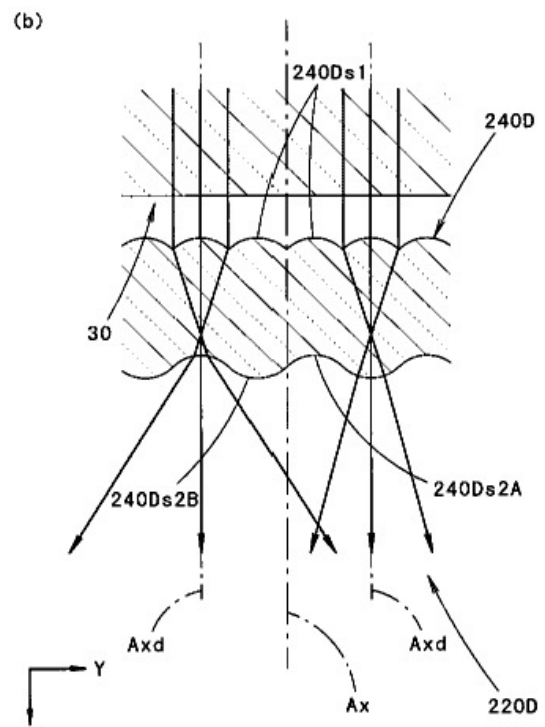
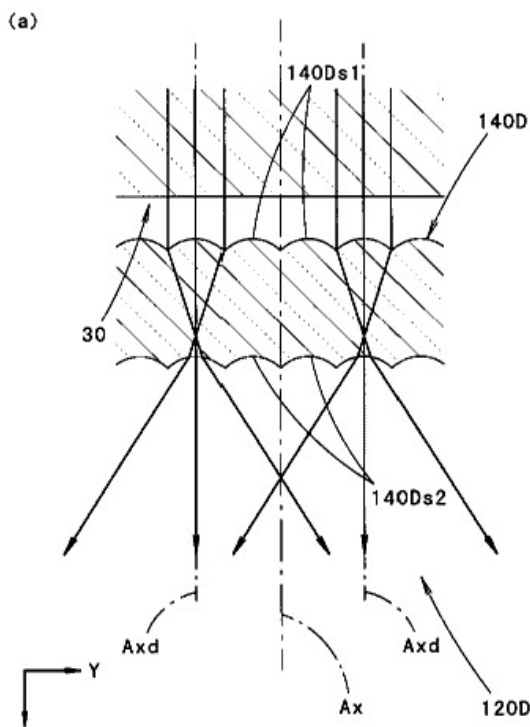
3.



4.



5.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Volumetric diffusers	F21S 43/281
----------------------	-----------------------------

Diffusing particles in the refractor bulk

[F21S 43/2811](#)

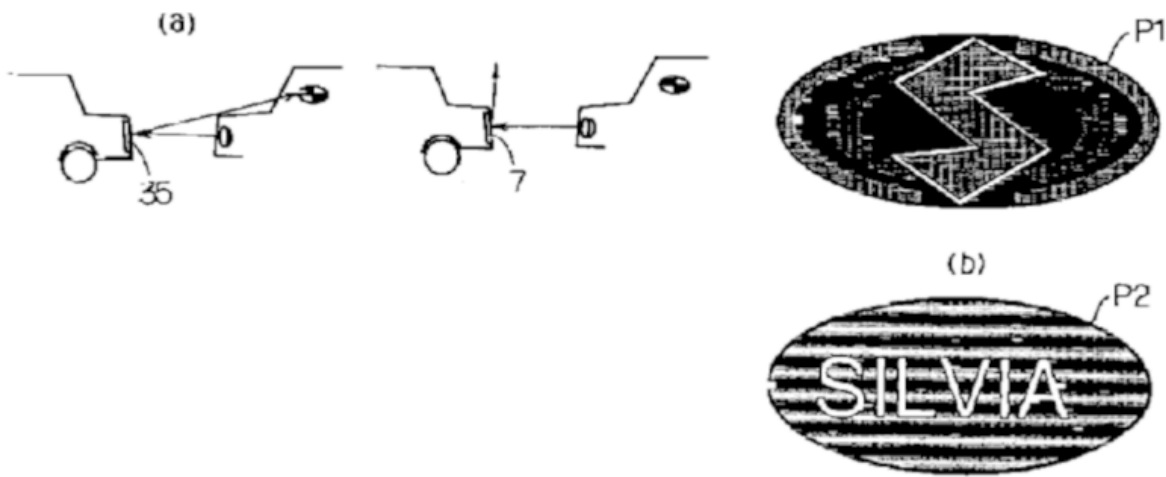
F21S 43/26251

{Holograms}

Definition statement

This place covers:

Illustrative example of subject matter classified in this place:



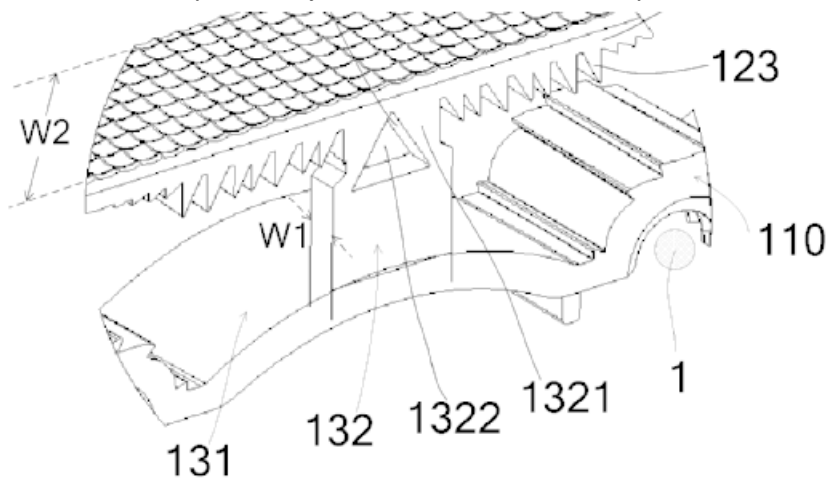
F21S 43/26261

{Single refractor combining two or more properties of the groups
[F21S 43/26211](#) - [F21S 43/26251](#) on opposite sides}

Definition statement

This place covers:

Illustrative example of subject matter classified in this place:



F21S 43/26411

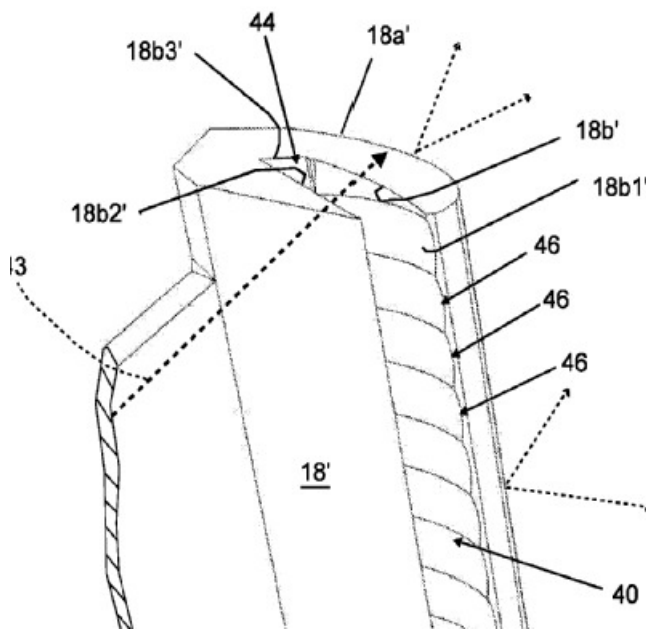
{Two or more successive refractors}

Definition statement

This place covers:

- two successive refractors;
- a refractor placed along the optical path after or before a light guide.

Illustrative example of subject matter classified in this place:



Special rules of classification

Filters or cover glasses acting as transparent plates without shaping the light are not to be considered as refractors.

F21S 43/26421

{Refractors comprising a plurality of non-successive refracting portions}

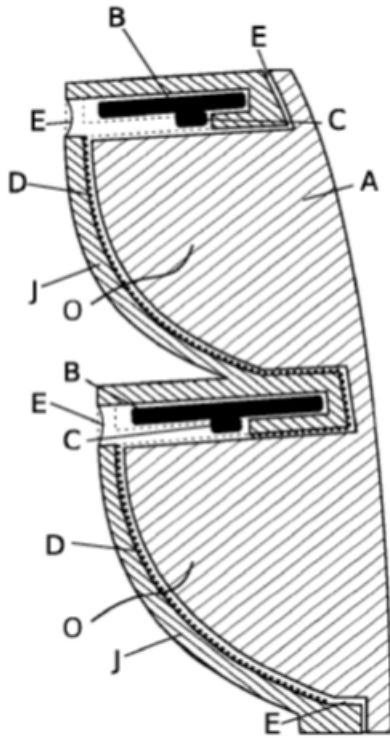
Definition statement

This place covers:

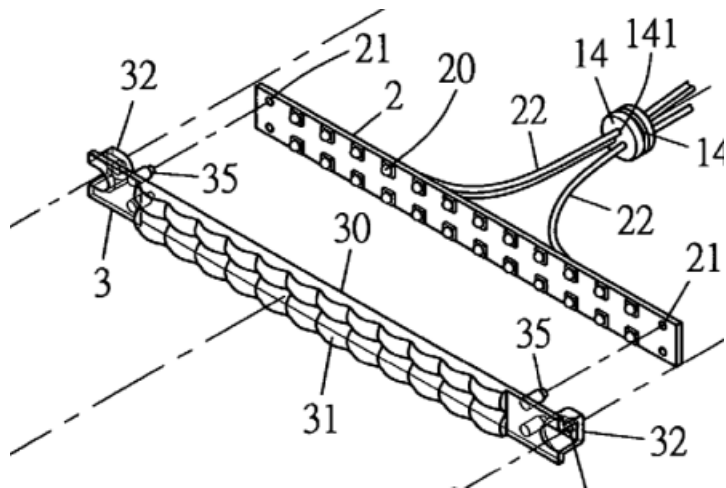
Refractors comprising a plurality of discrete non-successive refracting portions forming a one-piece refractor.

Illustrative examples of subject matter classified in this place:

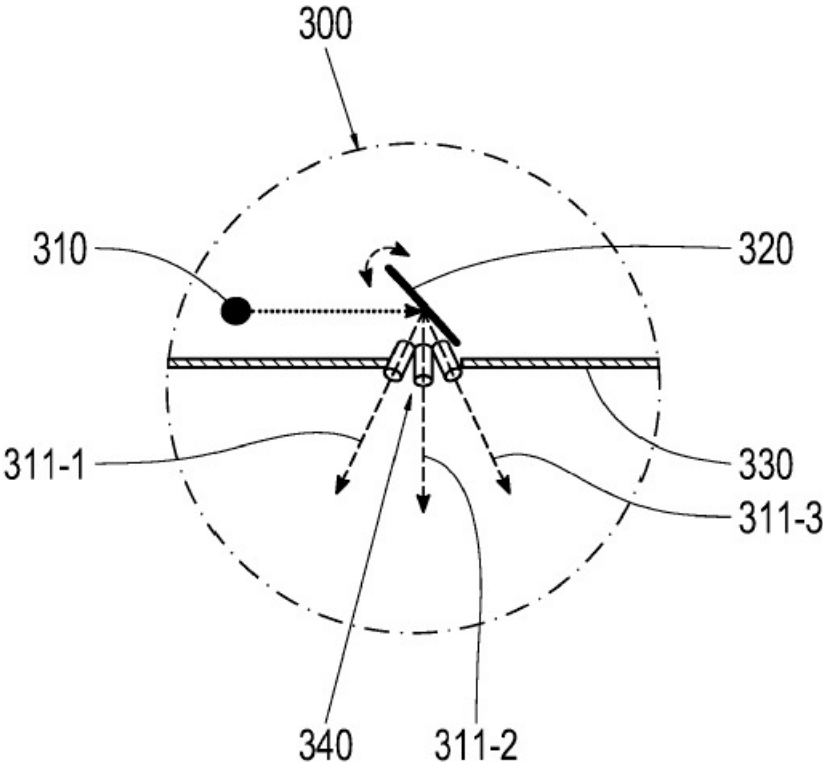
1.



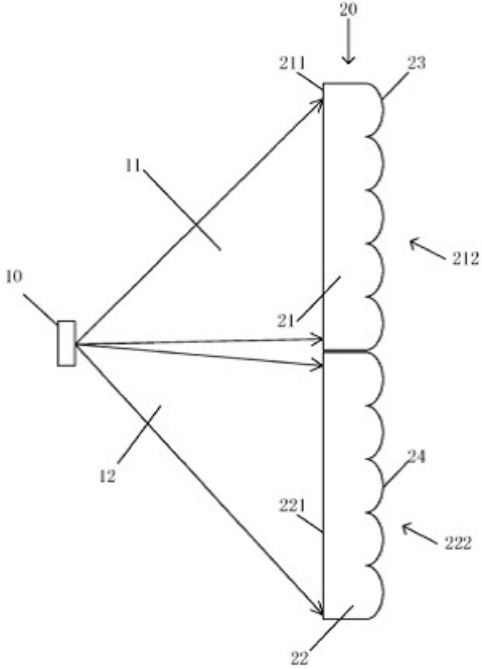
2.



3.



4.



F21S 43/2643

{with several light entry surfaces for two or more light sources having distinct functions, at least one of them being signalling}

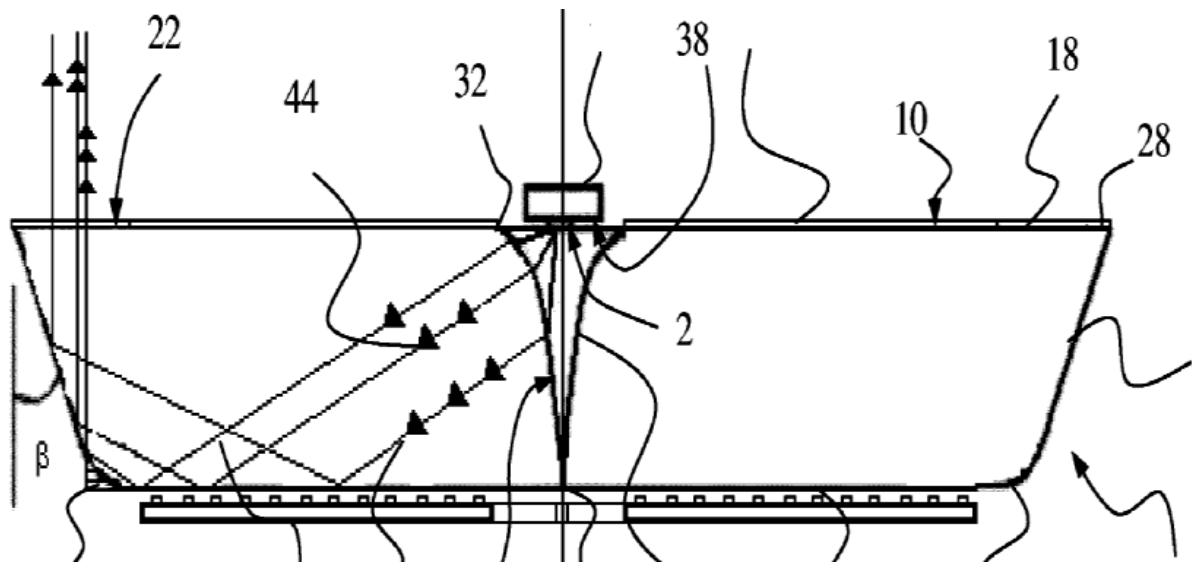
Definition statement

This place covers:

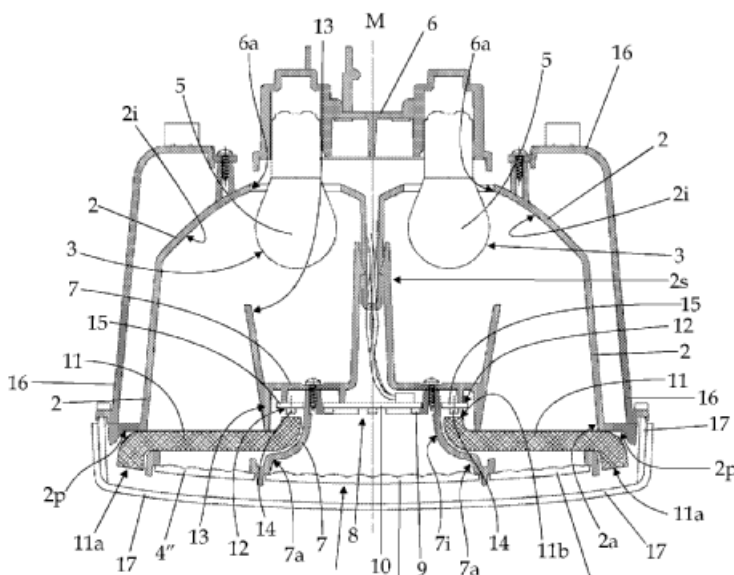
- headlamp projection lenses having an entry face for a position light;
- cover glasses acting as light guide for an LED on their edge;
- stacked lighting units behind the major surfaces of the light guides whose light transverses the light guides.

Illustrative examples of subject matter classified in this place:

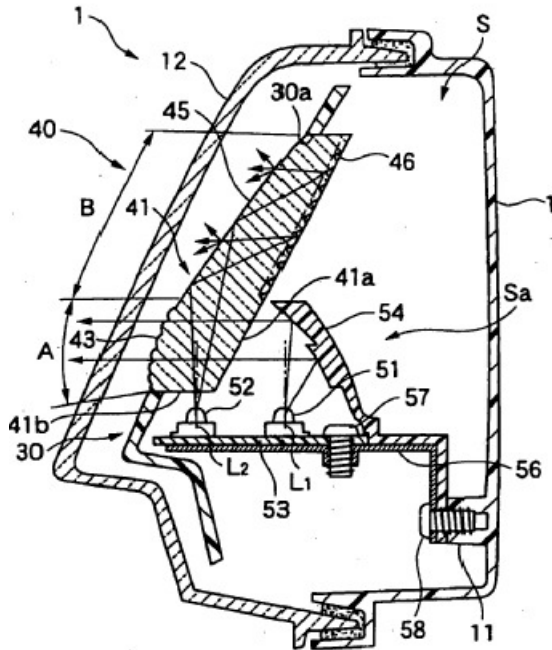
1.



2.



3.



F21S 43/265

{Transparent cover plates, e.g. for protecting the interior of the signalling devices against environmental influences}

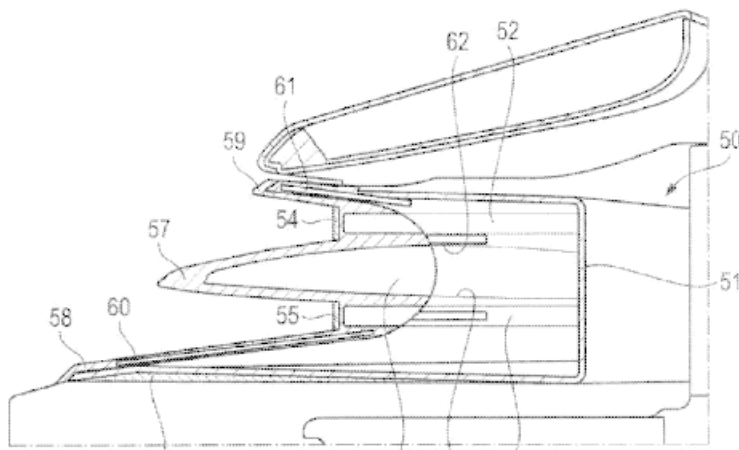
Definition statement

This place covers:

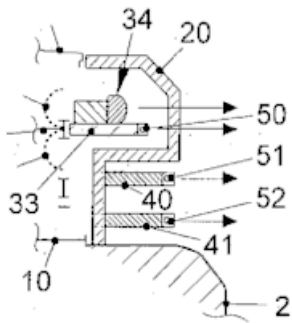
- cover glasses, e.g. for protecting the interior against water and dust;
- at least partially light transparent elements covering the housings of the signalling devices, e.g. for protecting the interior against water and dust.

Illustrative examples of subject matter classified in this place:

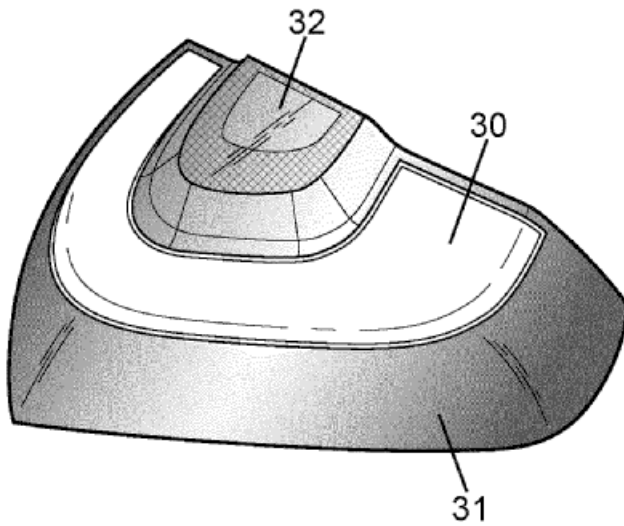
1.



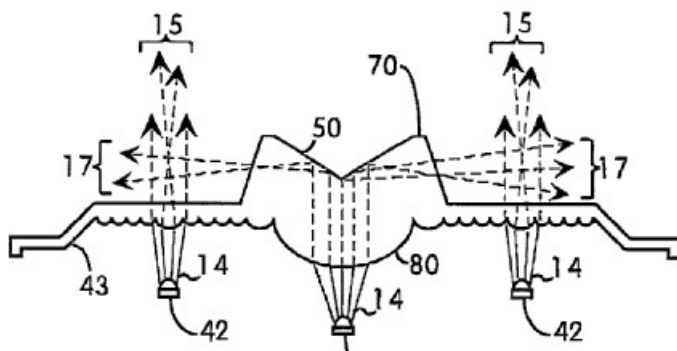
2.



3.



4.



Special rules of classification

The features regarding the interface with the vehicle, such as fixing elements of the cover glass to the vehicle or wind sealing lips should be classified in [B60Q](#).

F21S 43/281

{Materials thereof; Structures thereof; Properties thereof; Coatings thereof}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical elements in general characterised by the material of which they are made	G02B 1/00
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F21S 43/2811

{Heterogeneous materials}

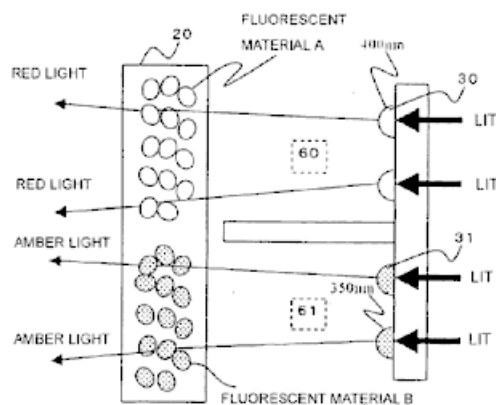
Definition statement

This place covers:

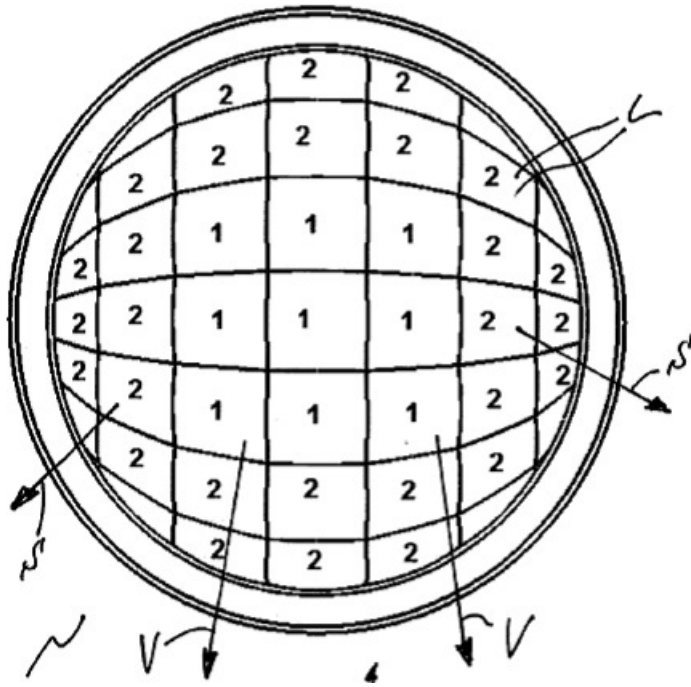
- materials comprising inserts;
- materials comprising particles, e.g. for volumetric diffusers;
- materials comprising bubbles;
- materials with sections having different light transmissivities (e.g. made of a mix of transparent, opaque, opalescent materials);
- materials with sections having different light refraction indexes (e.g. two different glass materials).

Illustrative examples of subject matter classified in this place:

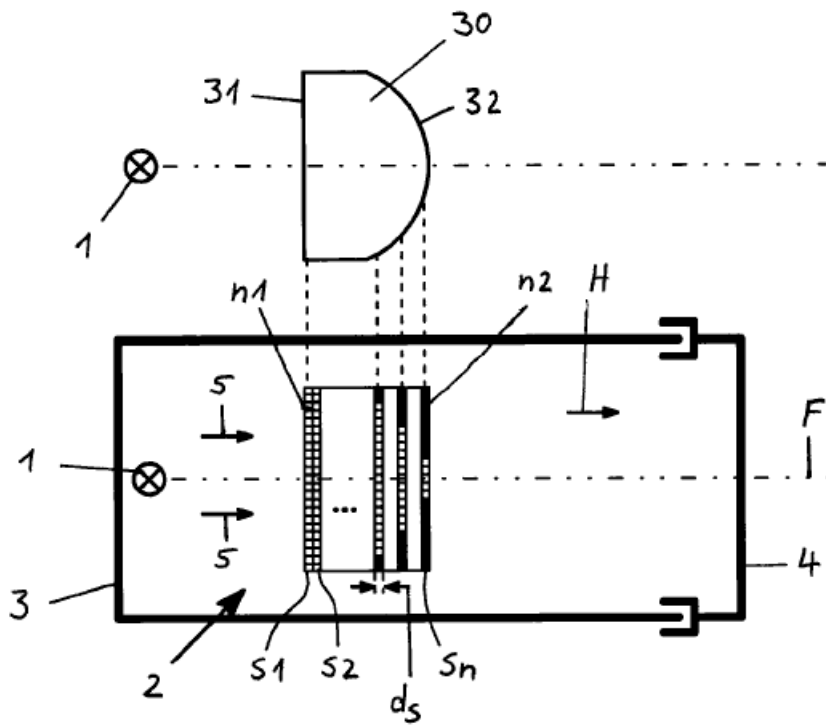
1.



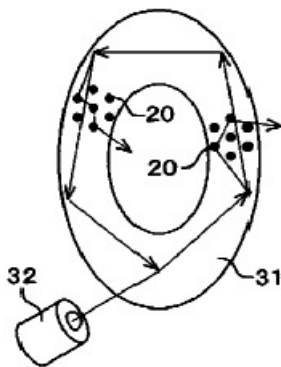
2.



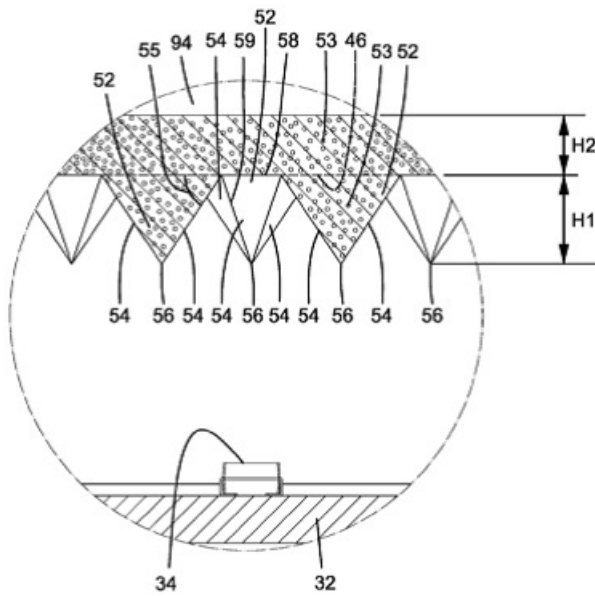
3.



4.



5.



F21S 43/28131

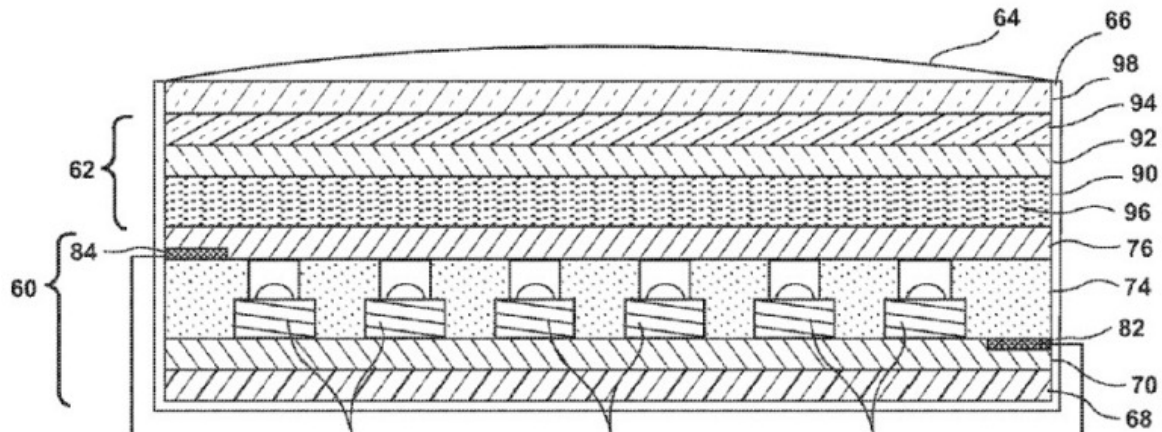
{Structures comprising multiple layers}

Definition statement

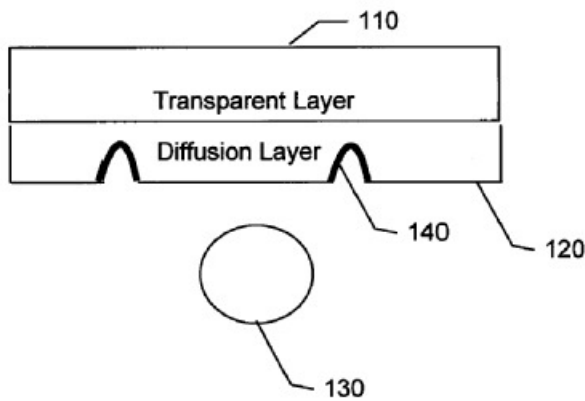
This place covers:

Illustrative examples of subject matter classified in this place:

1.



2.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Layered products per se	B32B
Laminated safety glass or glazing incorporating specific parts for the variable transmission of light	B32B 17/10467
Laminated safety glass or glazing comprising a light source or a light guide	B32B 17/10541
Layered vehicle transparent parts made from plastic material	B32B 2605/006

F21S 43/28133

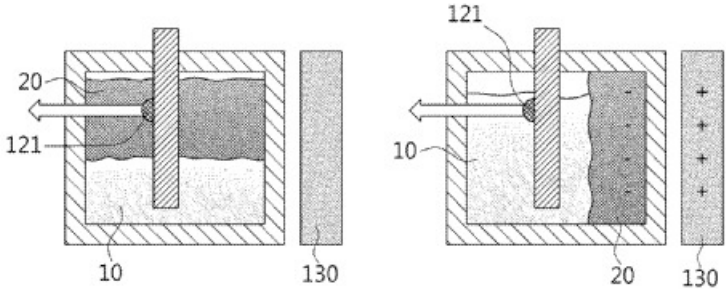
{Structures comprising gas or liquid media}

Definition statement

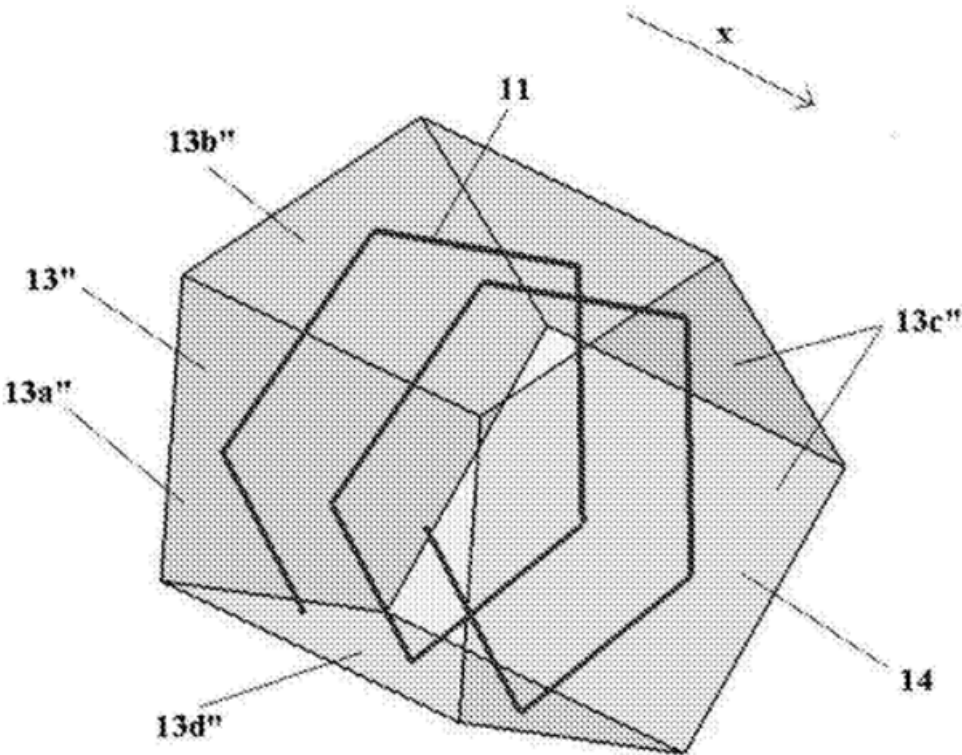
This place covers:

Illustrative examples of subject matter classified in this place:

1.

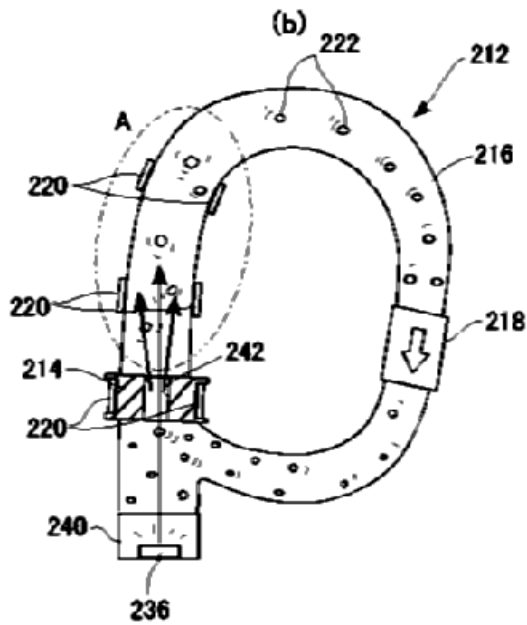


2.



The above figure shows a refractor filled by a liquid colloid comprising light-diffusing particles.

3.



F21S 43/28135

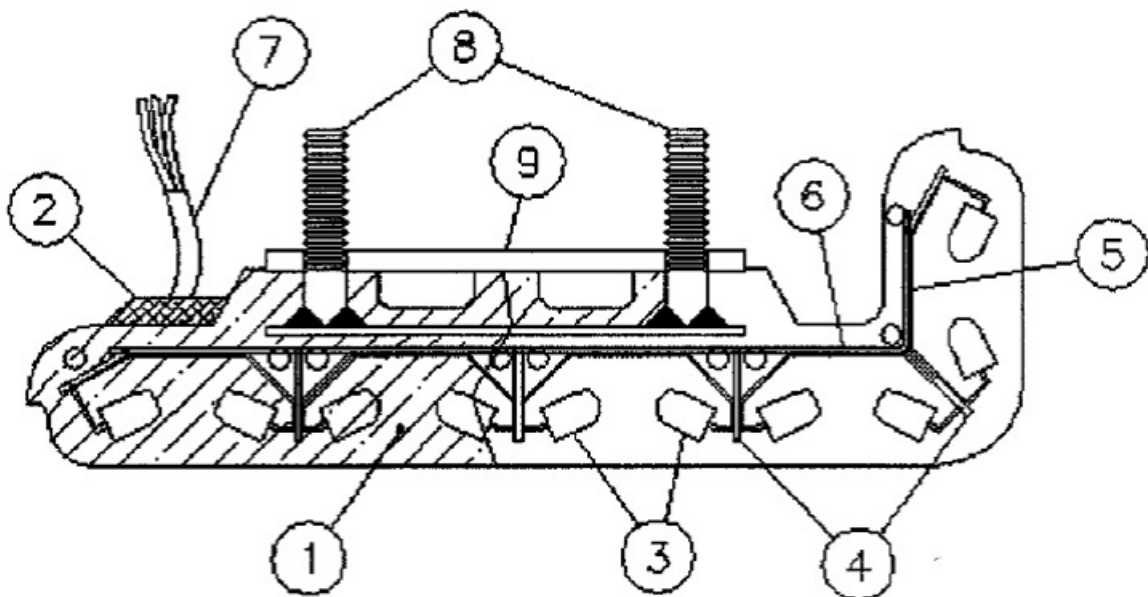
{Structures encapsulating the light source}

Definition statement

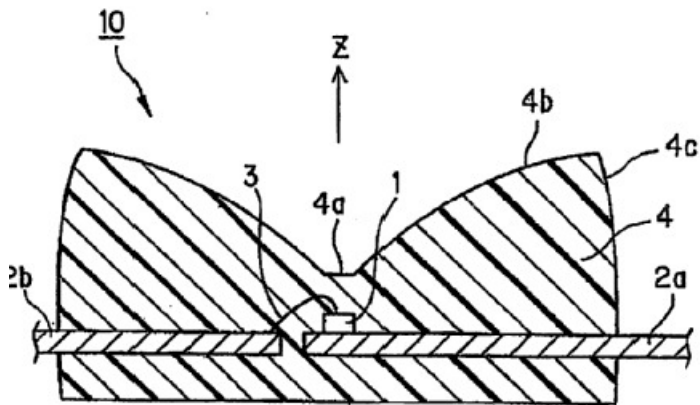
This place covers:

Illustrative examples of subject matter classified in this place:

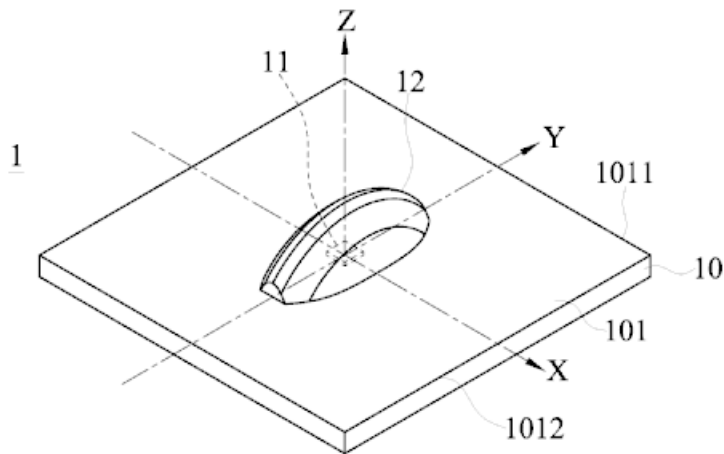
1.



2.



3.



References

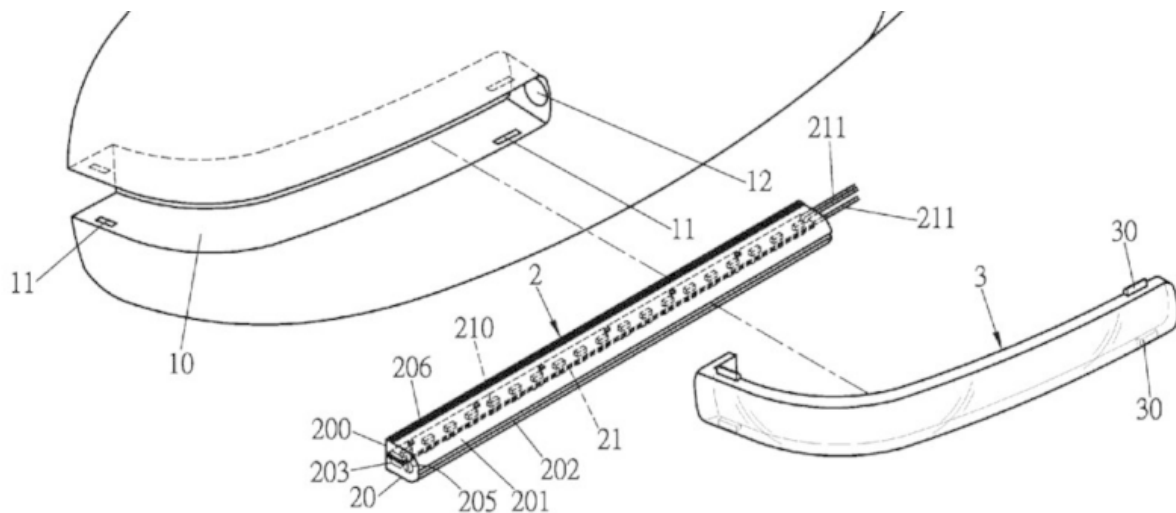
Informative references

Attention is drawn to the following places, which may be of interest for search:

Wavelength conversion elements for semiconductor devices characterised by the semiconductor body packages	H01L 33/50
Encapsulations for semiconductor devices characterised by the semiconductor body packages	H01L 33/52

F21S 43/2815**{Mechanical properties, e.g. flexibility}****Definition statement***This place covers:*

Illustrative example of subject matter classified in this place:



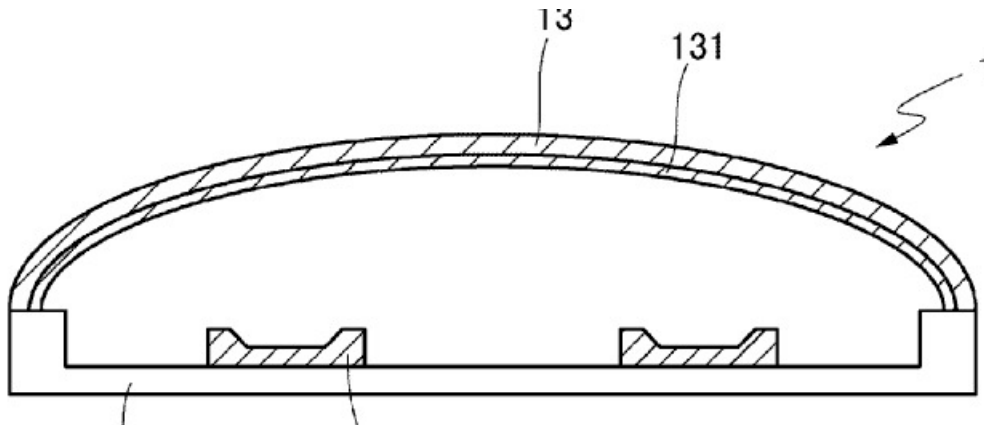
Element 20 is made from PVC, which is flexible, so that the signalling unit can be adapted to the shape of the vehicle or its parts.

F21S 43/2817**{Coatings, e.g. anti-reflection coatings}****Definition statement***This place covers:*

- chromed surfaces;
- anti-reflection coatings;
- UV-protection coatings;
- opaque coatings;
- printed coatings.

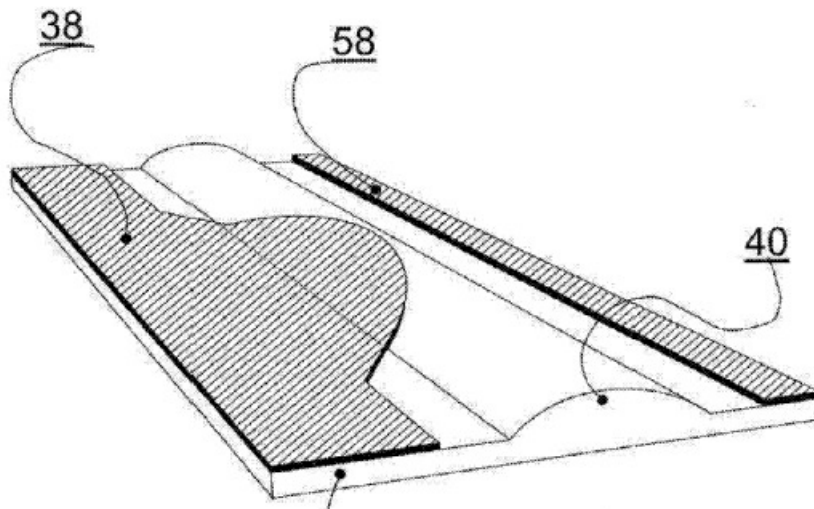
Illustrative examples of subject matter classified in this place:

1.



The above figure shows an anti-reflection layer 131 on the cover glass 13.

2.



The above figure shows coloured or printed shielding layers 38, 58 on the refractor/cover glass.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Optical coatings produced by application to, or surface treatment of, optical elements in general	G02B 1/10
Anti-reflection coatings for optical elements in general	G02B 1/11

F21S 43/315

{using total internal reflection}

Definition statement

This place covers:

Refractors having no light-shaping refracting interface.

F21S 43/332

{Diffusing reflectors}

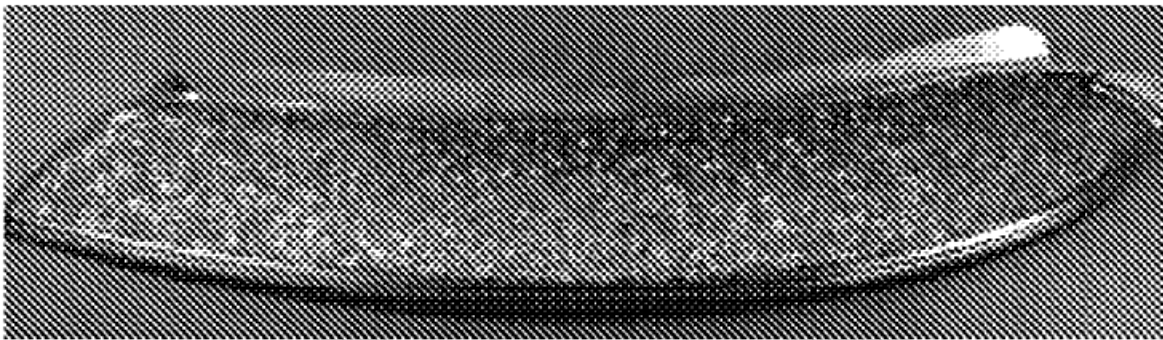
Definition statement

This place covers:

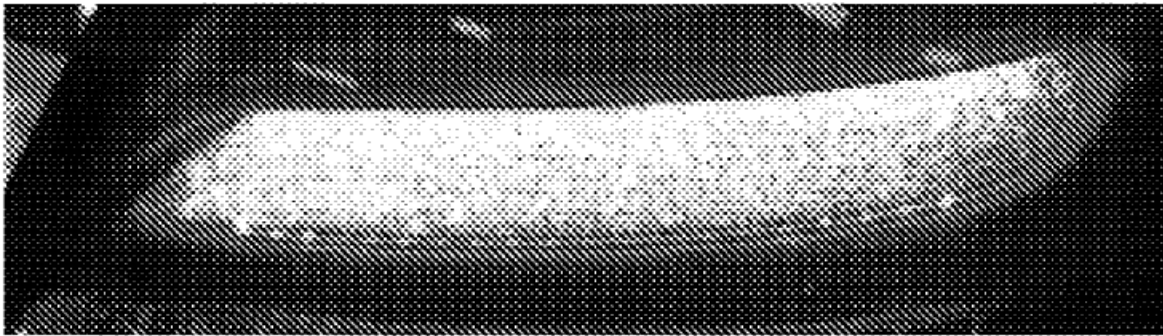
- reflectors with surfaces made diffusive by graining, laser etching, coating or painting;
- white or coloured reflectors;
- reflectors causing sparkling effect.

Illustrative examples of subject matter classified in this place:

1.

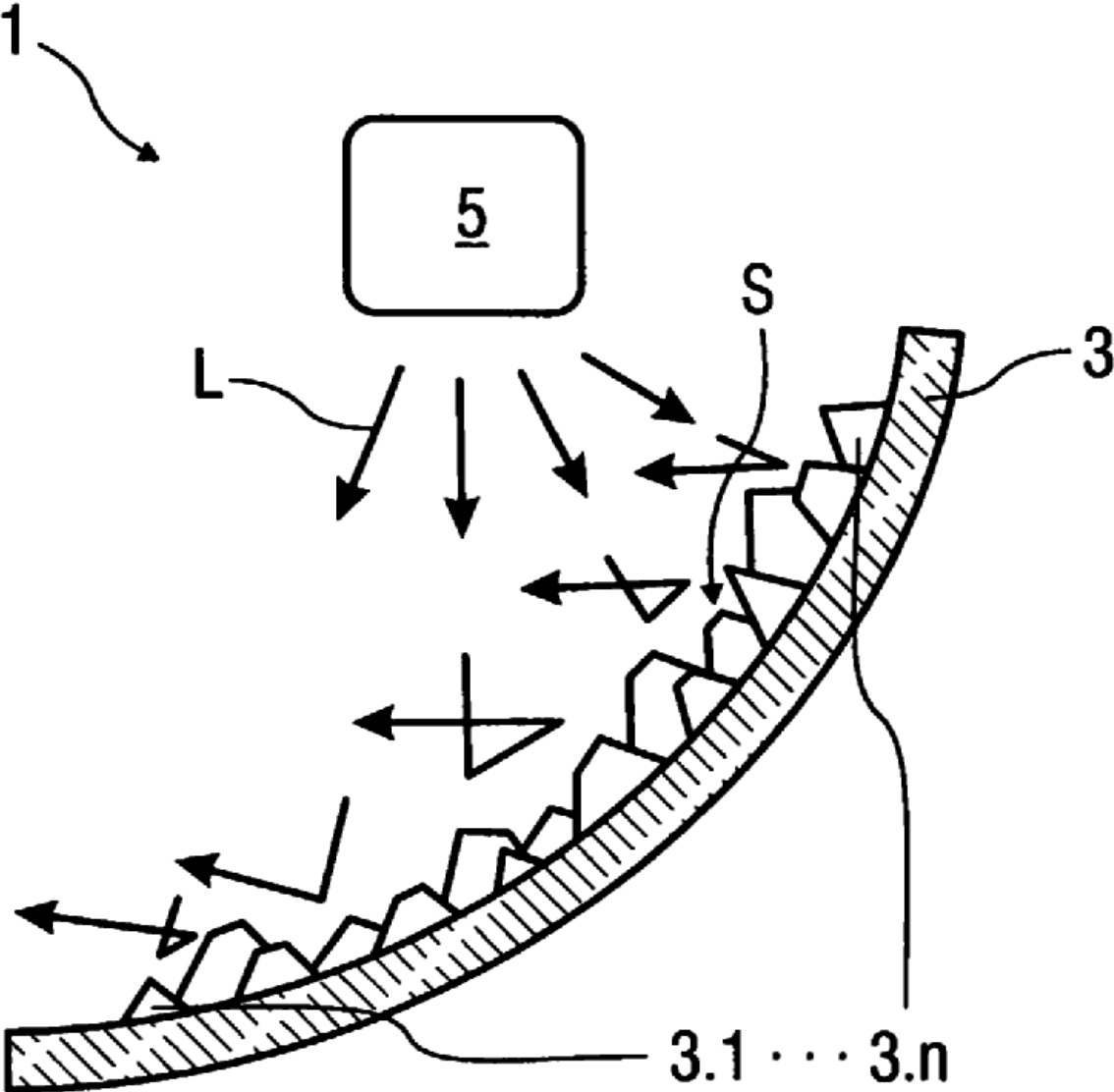


(a)

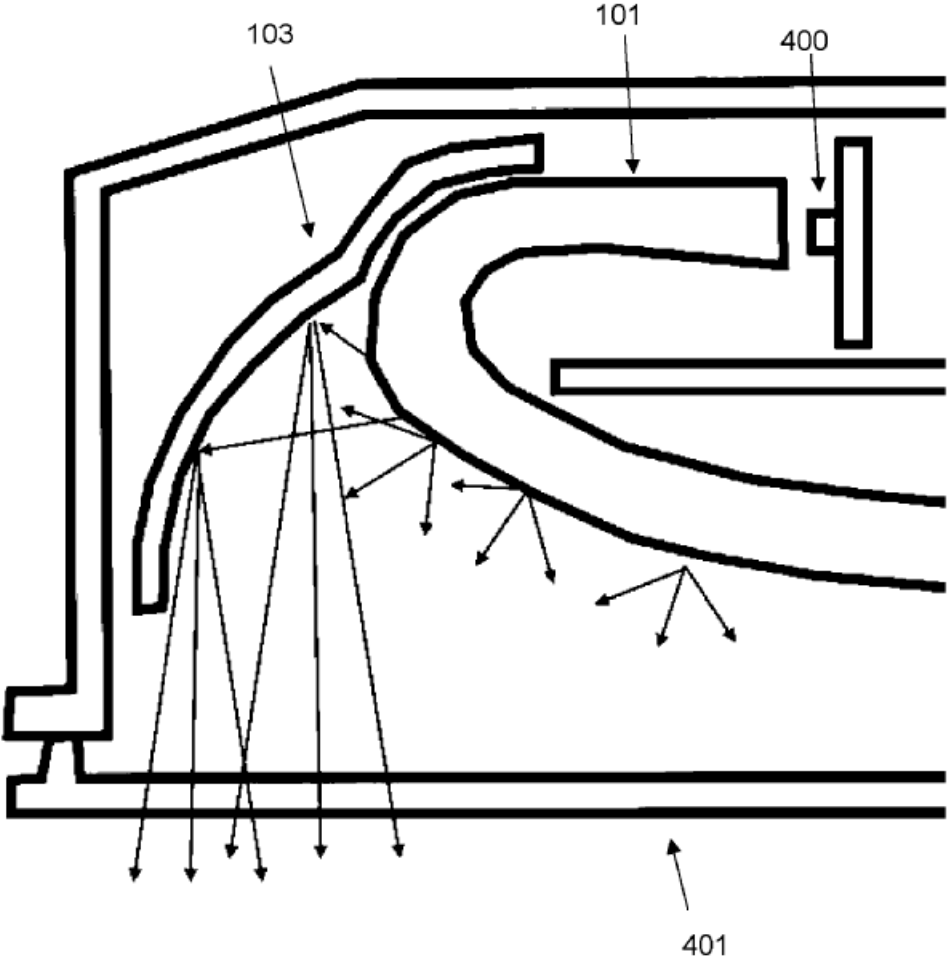


(b)

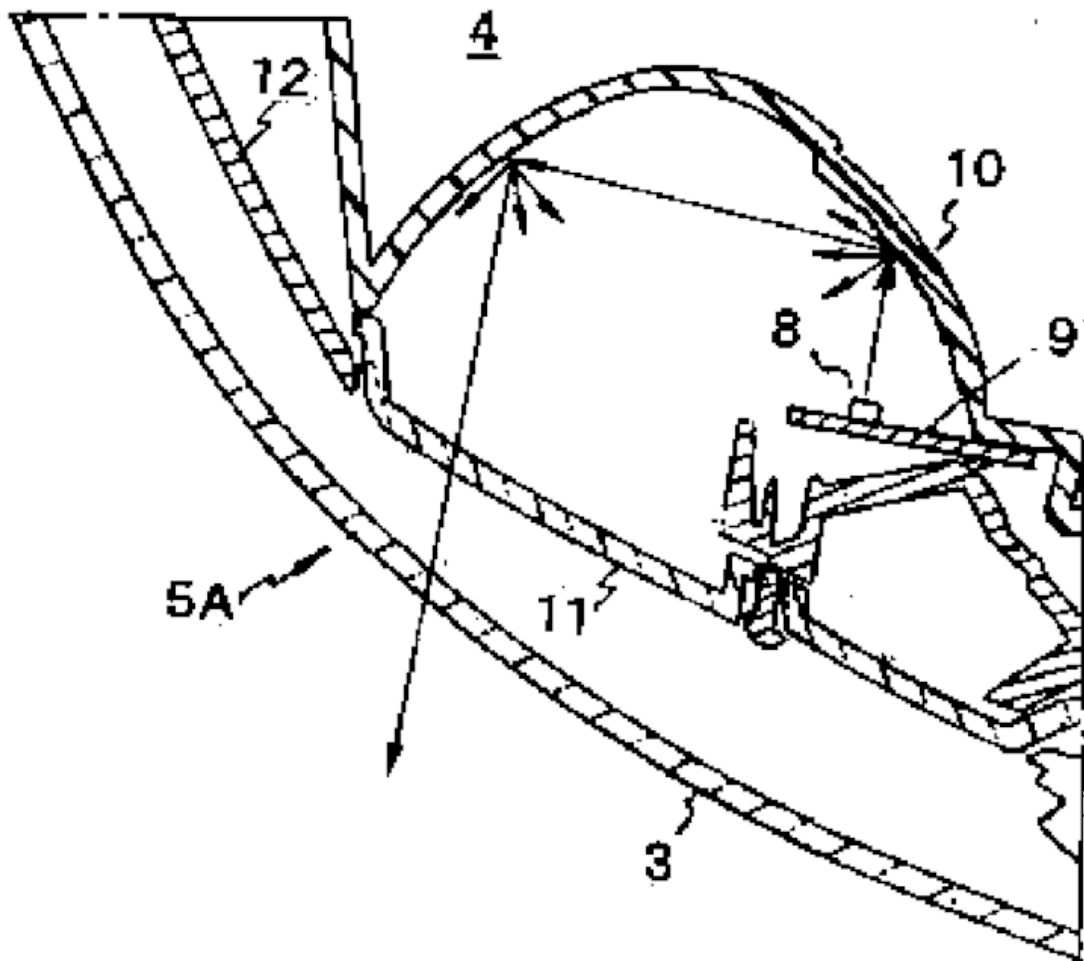
2.



3.



4.



F21S 43/40

characterised by the combination of reflectors and refractors

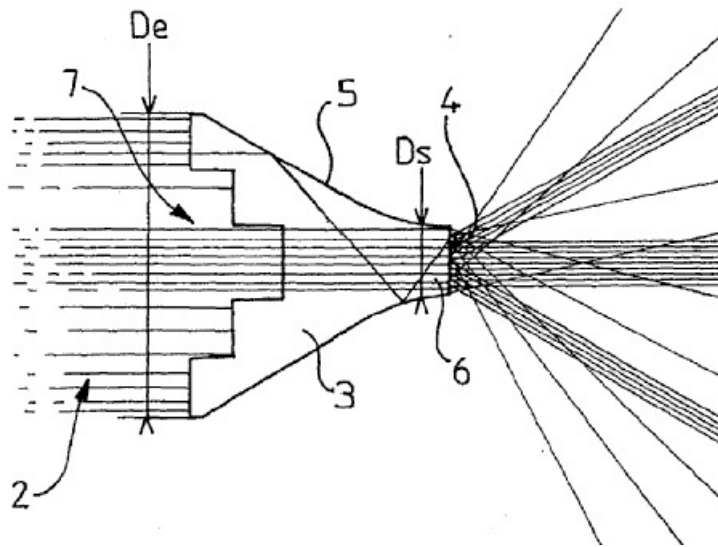
Definition statement

This place covers:

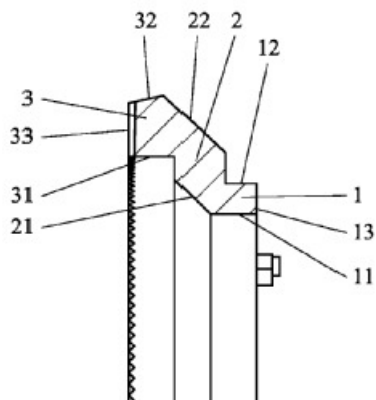
A refractor for one light source, a reflector for another light source, with both light sources participating to the same signalling function.

Illustrative examples of subject matter classified in this place:

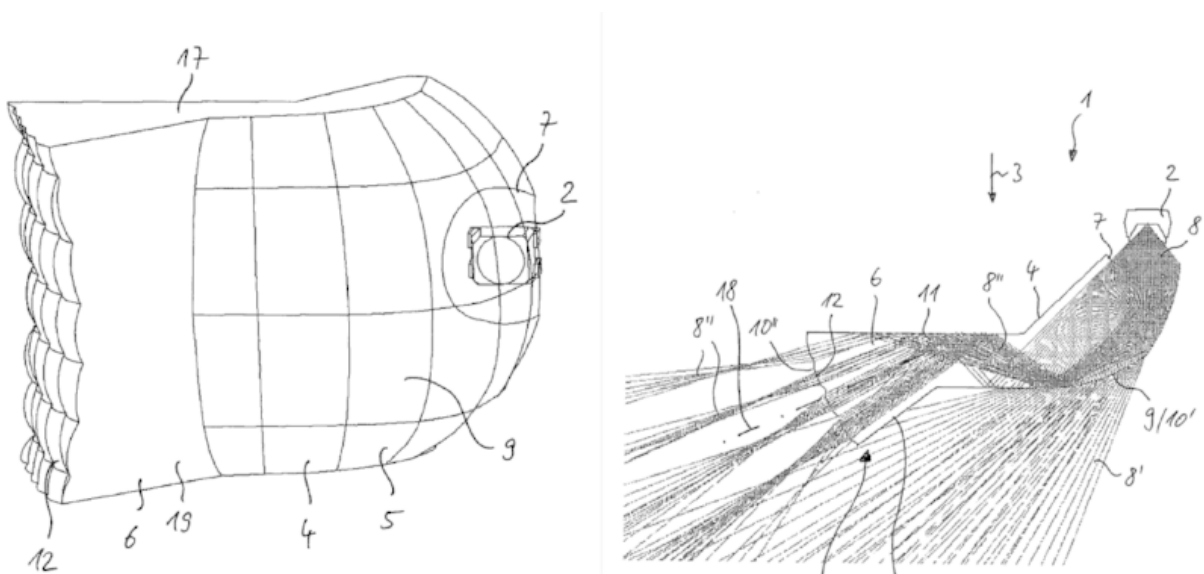
1.



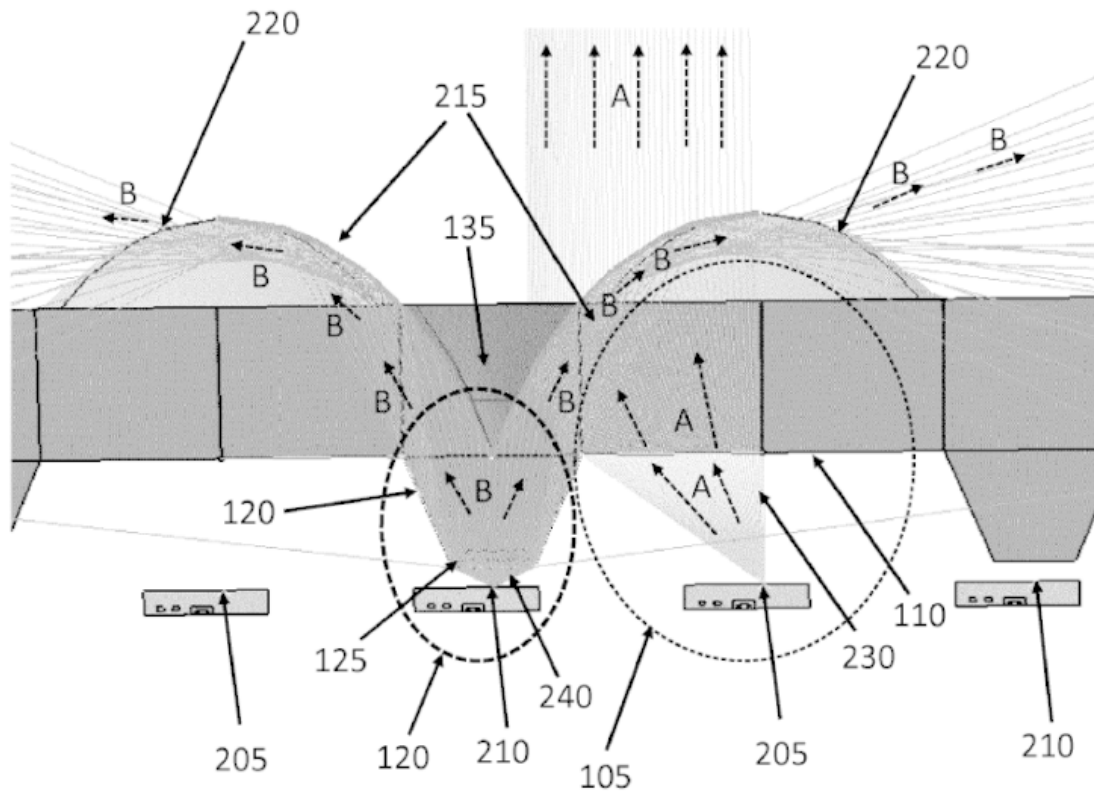
2.



3.



4.



F21S 43/401

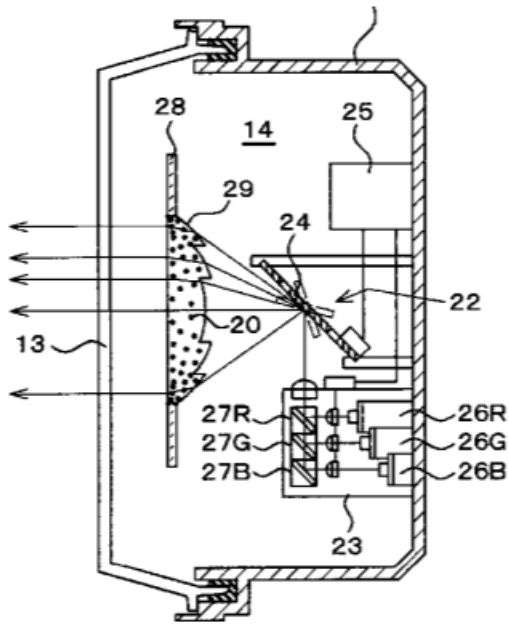
{the refractors and the reflectors being distinct parts}

Definition statement

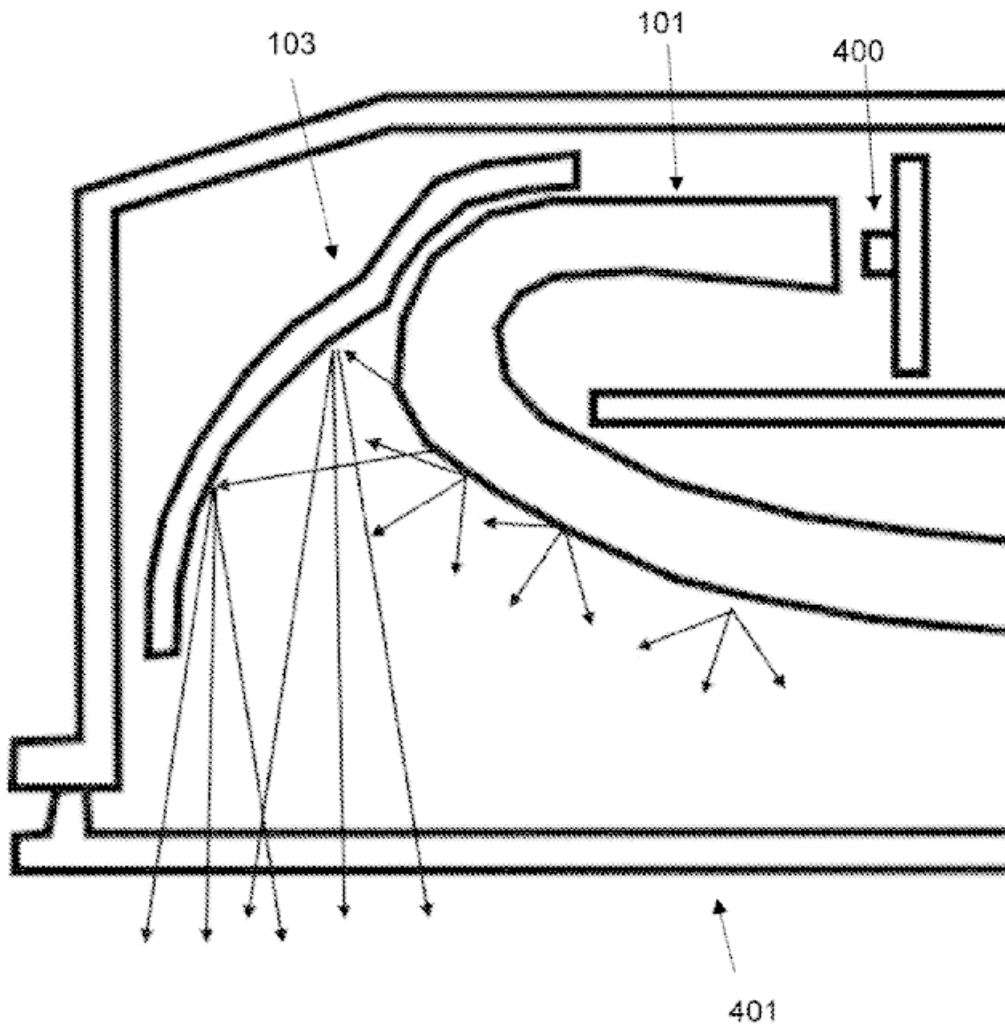
This place covers:

Illustrative examples of subject matter classified in this place:

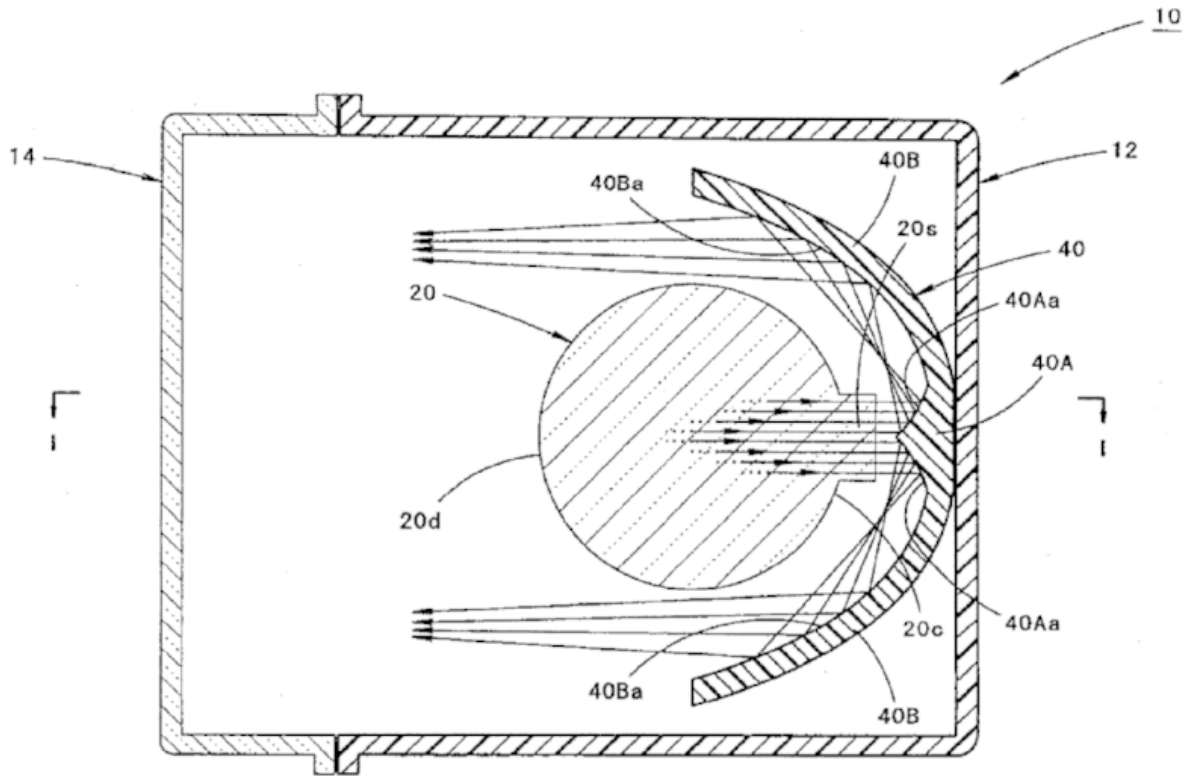
3.



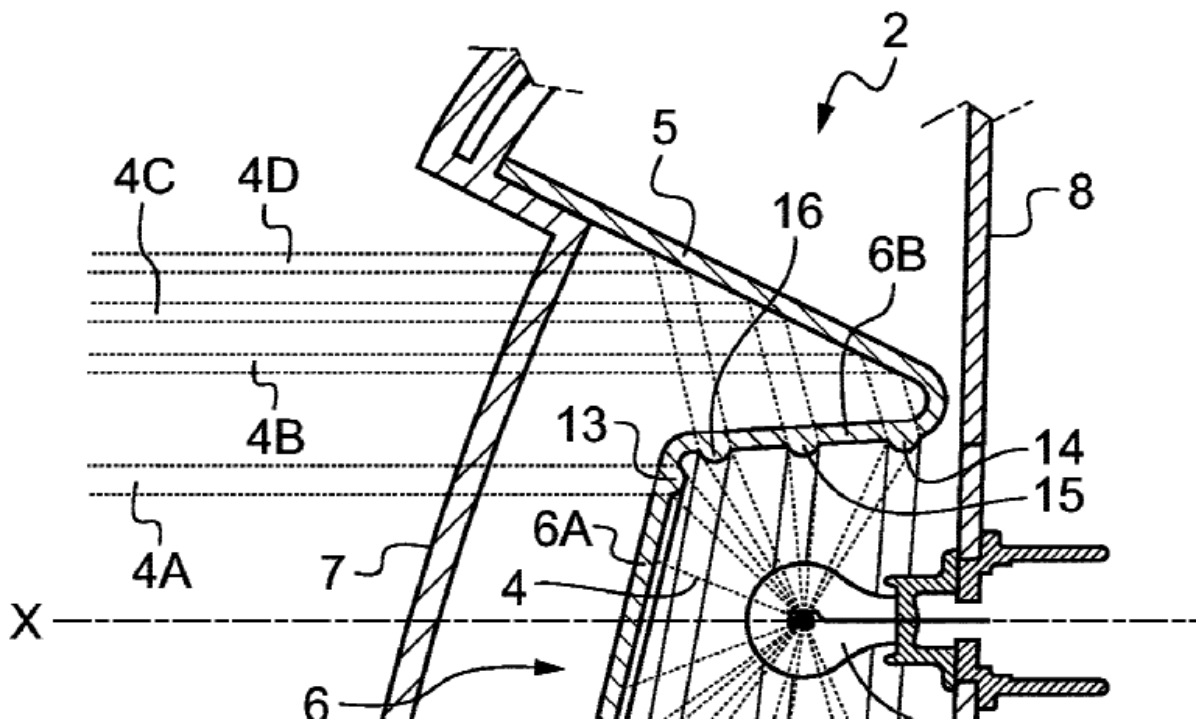
4.



5.



6.



F21S 43/402

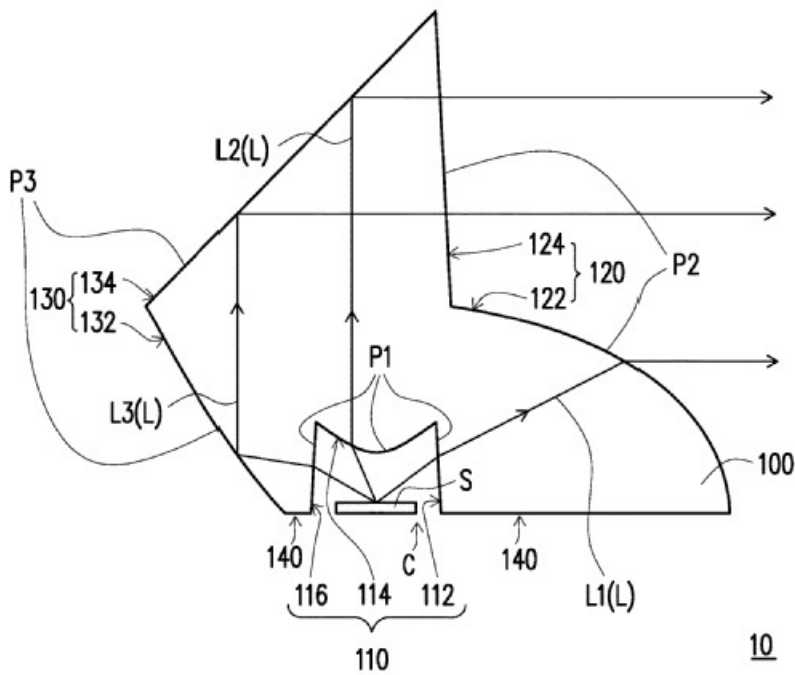
{Total internal reflection [TIR] collimators}

Definition statement

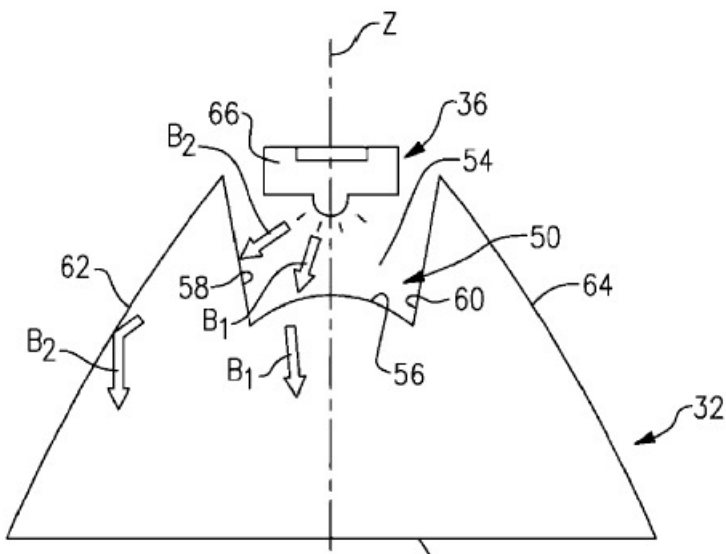
This place covers:

Illustrative examples of subject matter classified in this place:

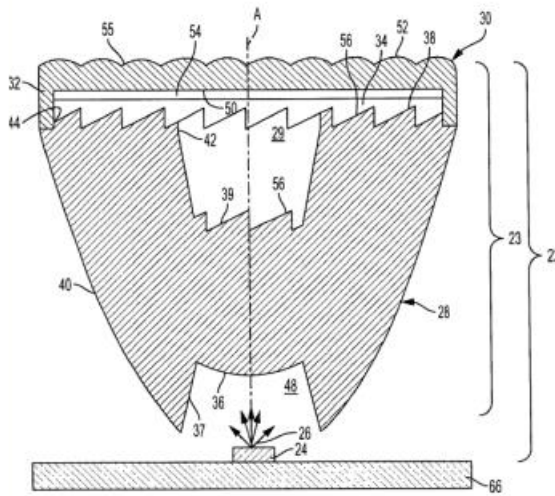
1.



2.



3.



References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Total internal reflection [TIR] reflectors	F21S 43/315
Condensers in general having refractive and reflective surfaces	G02B 19/0028
Collimators in general	G02B 27/30

F21S 43/601

{characterised by variable optical properties, e.g. involving the use of LCD or movable parts}

Definition statement

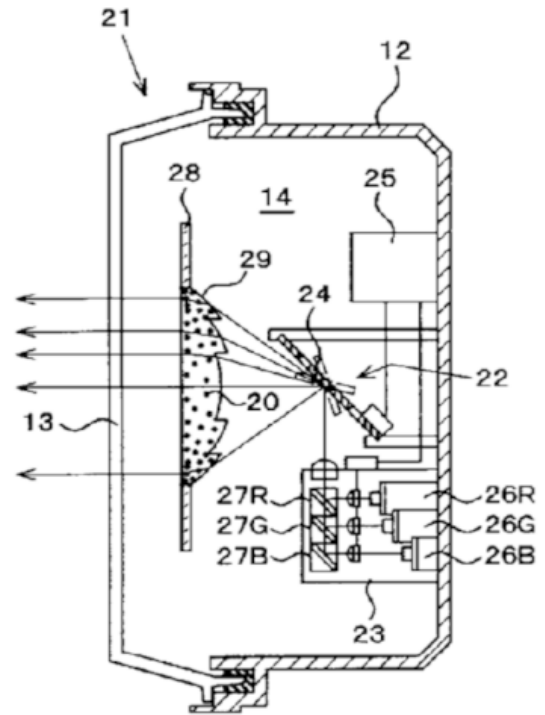
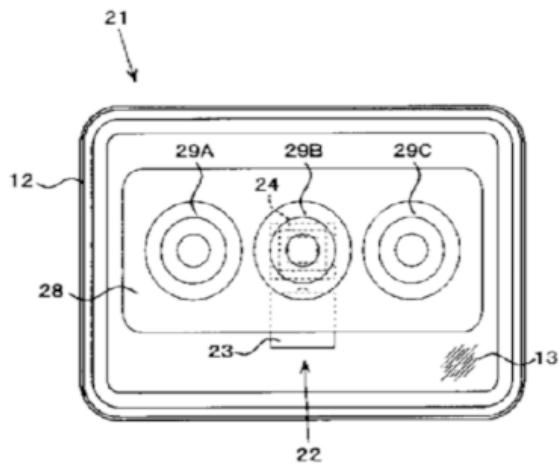
This place covers:

Variable optical properties involving the use of:

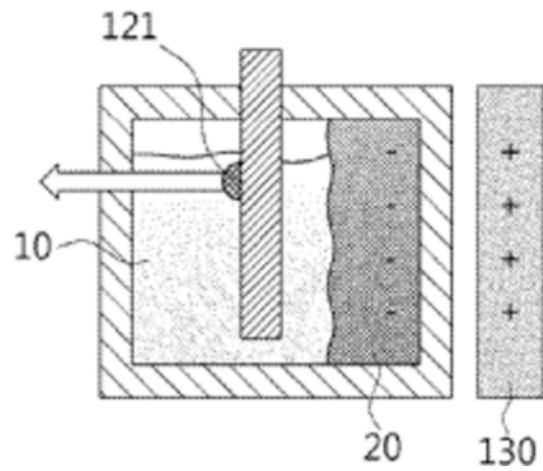
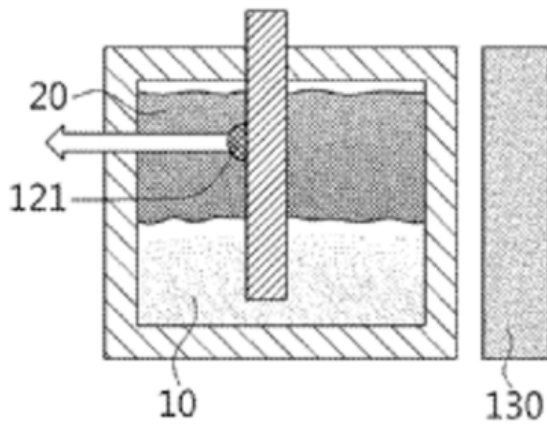
- LCD;
- movable parts;
- rotating units;
- scanners;
- dynamic signalling patterns;
- means for colour or brightness changes.

Illustrative examples of subject matter classified in this place:

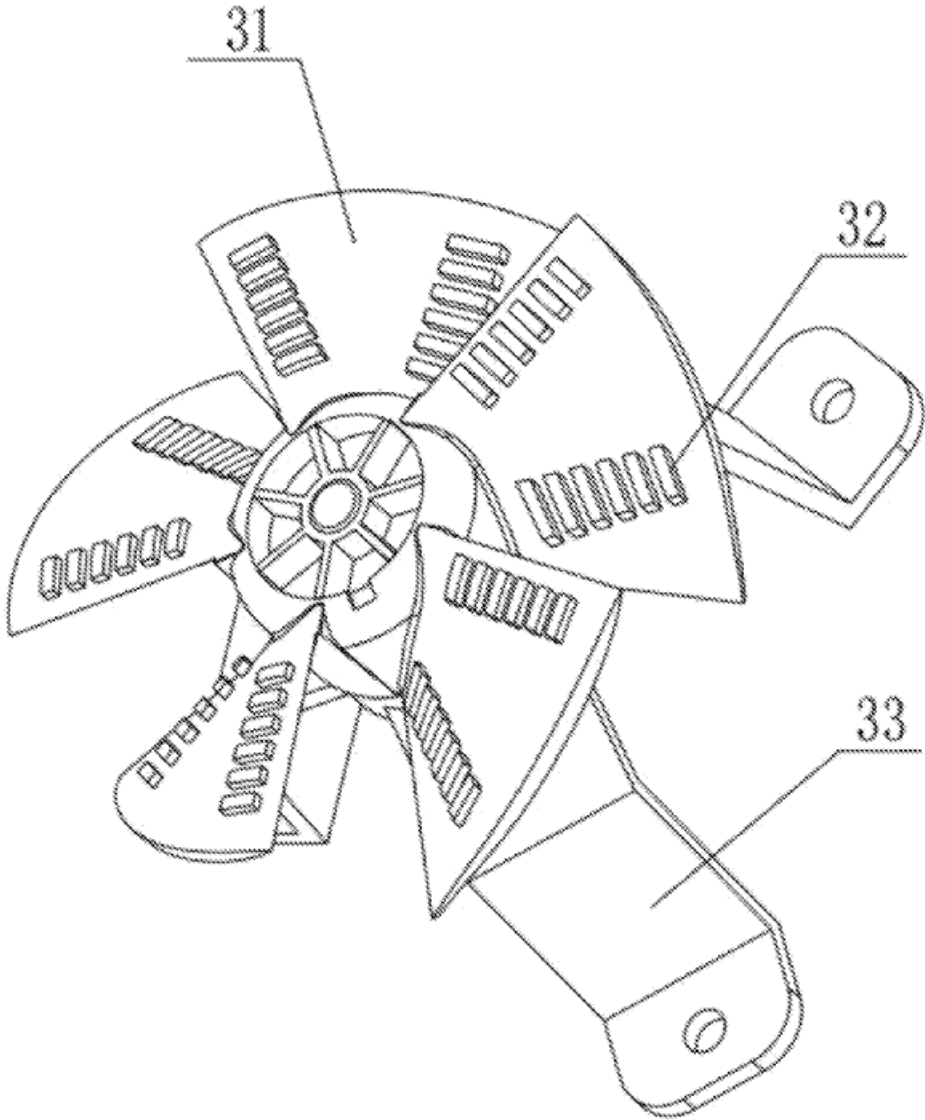
1.



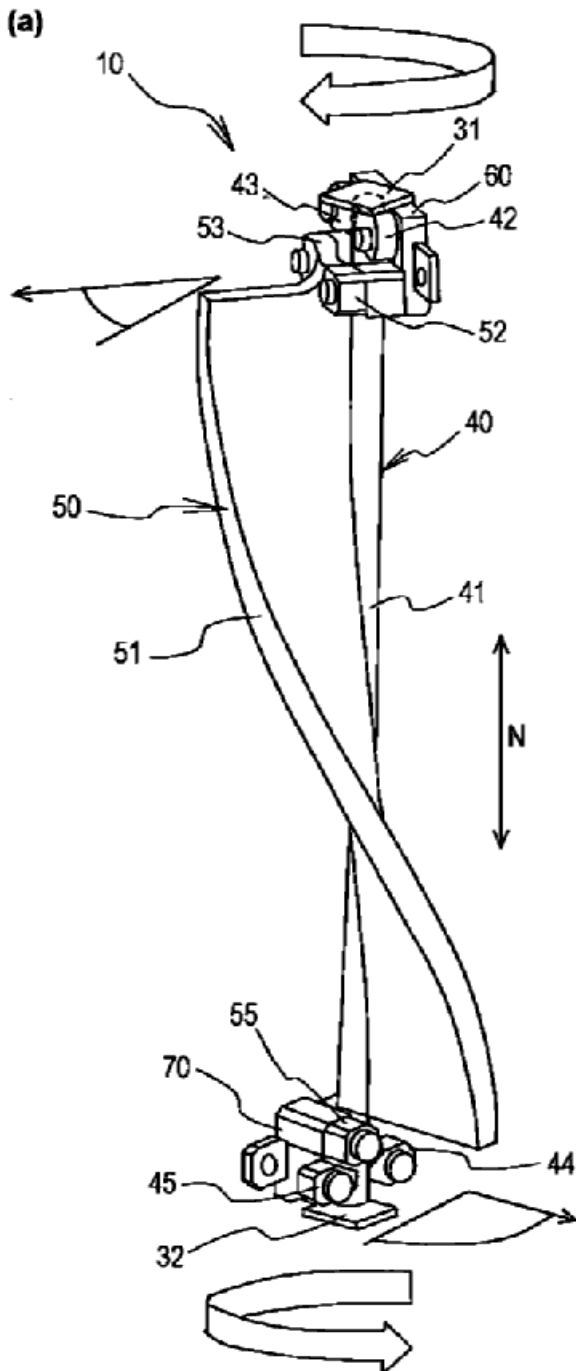
2.



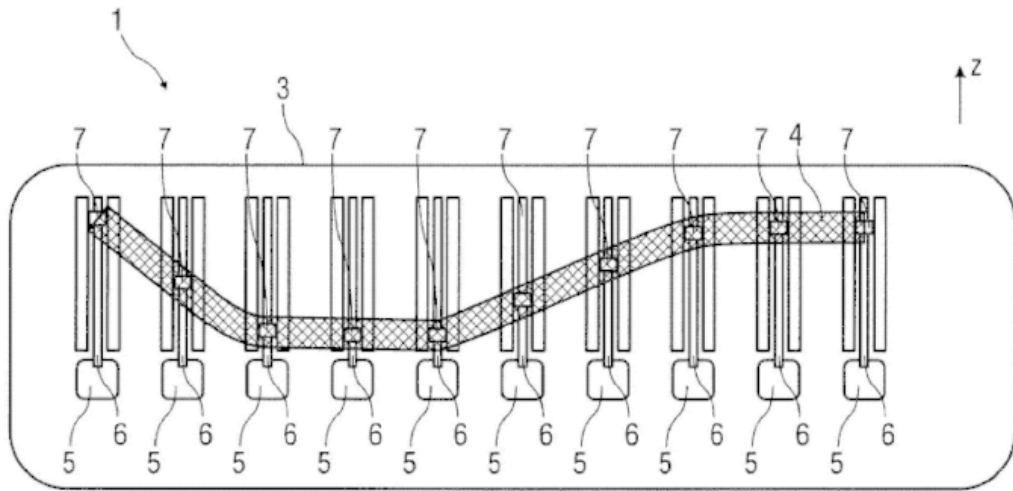
3.



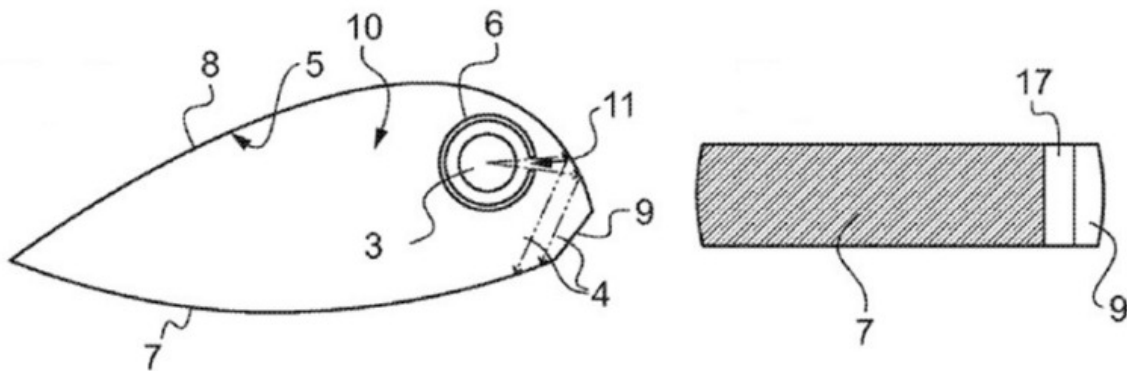
4.



5.



6.



F21S 2243/00

Manufacturing details of signalling devices specially adapted for vehicle exteriors

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compression moulding of plastics around inserts or for coating articles	B29C 43/18
Making multilayered or multicoloured articles by compression moulding of plastics	B29C 43/20
Injection moulding of plastics around inserts or for coating articles	B29C 45/14
Making multilayered or multicoloured articles by injection moulding of plastics	B29C 45/16
Producing optical elements from plastics or from substances in a plastic state	B29D 11/00