SECTION G — PHYSICS

G02 OPTICS

G02B **OPTICAL ELEMENTS, SYSTEMS, OR APPARATUS** (G02F takes precedence; optical elements specially adapted for use in lighting devices or systems thereof F21V 1/00-F21V 13/00; measuring-instruments, see the relevant subclass of class G01, e.g. optical rangefinders G01C; testing of optical elements, systems, or apparatus G01M 11/00; spectacles G02C; apparatus or arrangements for taking photographs or for projecting or viewing them G03B; sound lenses G10K 11/30; electron and ion "optics" H01J; X-ray "optics" H01J, H05G 1/00; optical elements structurally combined with electric discharge tubes H01J 5/16, H01J 29/89, H01J 37/22; microwave "optics" H01Q; combination of optical elements with television receivers H04N 5/72; optical systems or arrangements in colour television systems H04N 9/00; heating arrangements specially adapted for transparent or reflecting areas H05B 3/84) **[1, 7]**

Note(s) [7]

1. Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to "microstructural devices" and "microstructural systems".

Subclass index

OPTICAL ELEMENTS
- characterised by their structure: lenses; light guides; other elements 3/00, 6/00, 5/00
- characterised by the material 1/00

OPTICAL SYSTEMS
- General structure: number and arrangements of optical components 9/00, 11/00
- Special structures: according to purpose; with variable magnification; with reflecting surfaces 13/00, 15/00, 17/00
- Other systems 27/00
- Optical systems or apparatus for producing three-dimensional [3D] effects 30/00

STRUCTURAL DETAILS OF ARRANGEMENTS COMPRISING LIGHT GUIDES AND OTHER OPTICAL ELEMENTS 6/00

OPTICAL APPARATUS
- Condensers 19/00
- Microscopes 21/00
- Telescopes, periscopes, instruments for viewing the inside of hollow bodies, viewfinders, aiming or sighting devices 23/00
- Eyepieces, magnifying glasses 25/00
- Other apparatus 27/00

CONTROL OF LIGHT 26/00

MOUNTINGS, ADJUSTING MEANS, LIGHT-TIGHT CONNECTIONS 7/00

1/00 **Optical elements characterised by the material of which they are made** (compositions of optical glasses C03C 3/00)**; Optical coatings for optical elements [1, 2006.01]**

1/02 • made of crystals, e.g. rock-salt, semiconductors (G02B 1/08 takes precedence) **[1, 2006.01]**

1/04 • made of organic materials, e.g. plastics (G02B 1/08 takes precedence) **[1, 2006.01]**

1/06 • made of fluids in transparent cells **[1, 2006.01]**

1/08 • made of polarising materials **[1, 2006.01]**

1/10 • Optical coatings produced by application to, or surface treatment of, optical elements (G02B 1/08 takes precedence) **[1, 2006.01, 2015.01]**

1/11 • • Anti-reflection coatings **[6, 2006.01, 2015.01]**

1/111 • • • using layers comprising organic materials **[2015.01]**

1/113 • • • using inorganic layer materials only **[2015.01]**

1/115 • • • • Multilayers **[2015.01]**

1/116 • • • • • including electrically conducting layers **[2015.01]**

Note(s) [2015.01]

When electrically conducting layers also exhibit an anti-static effect, classification is also made in group G02B 1/16.

1/118 • • • having sub-optical wavelength surface structures designed to provide an enhanced transmittance, e.g. moth-eye structures **[2015.01]**

1/12 • • by surface treatment, e.g. by irradiation **[1, 2006.01]**

1/14 • • Protective coatings, e.g. hard coatings **[2015.01]**

1/16 • • having an anti-static effect, e.g. electrically conducting coatings **[2015.01]**

1/18 • • Coatings for keeping optical surfaces clean, e.g. hydrophobic or photo-catalytic films (G02B 1/16 takes precedence) **[2015.01]**

3/00 **Simple or compound lenses** (artificial eyes A61F 2/14; spectacle lenses or contact lenses for the eyes G02C; watch or clock glasses G04B 39/00) **[1, 2006.01]**

3/02 • with non-spherical faces (G02B 3/10 takes precedence) **[1, 2006.01]**

3/04 • • with continuous faces that are rotationally symmetrical but deviate from a true sphere **[1, 2006.01]**

3/06 • • with cylindrical or toric faces **[1, 2006.01]**

3/08 • • with discontinuous faces, e.g. Fresnel lens **[1, 2006.01]**

3/10 • Bifocal lenses; Multifocal lenses **[1, 2006.01]**

3/12 • Fluid-filled or evacuated lenses **[1, 2006.01]**

3/14 • • of variable focal length **[1, 2006.01]**

5/00 **Optical elements other than lenses** (light guides G02B 6/00; optical logic elements G02F 3/00) **[1, 4, 2006.01]**

5/02 • Diffusing elements; Afocal elements **[1, 2006.01]**

5/04 • Prisms **[1, 2006.01]**

5/06 • • Fluid-filled or evacuated prisms **[1, 2006.01]**

5/08 • Mirrors **[1, 2006.01]**

5/09 • • Multifaceted or polygonal mirrors **[6, 2006.01]**

5/10 • • with curved faces **[1, 2006.01]**

5/12 • Reflex reflectors **[1, 2006.01]**

5/122 • • cube corner, trihedral or triple reflector type **[2, 2006.01]**

5/124 • • • plural reflecting elements forming part of a unitary plate or sheet **[2, 2006.01]**

5/126 • • including curved refracting surface **[2, 2006.01]**

5/128 • • • transparent spheres being embedded in matrix **[2, 2006.01]**

5/13 • • • plural curved refracting elements forming part of a unitary body **[2, 2006.01]**

5/132 • • • with individual reflector mounting means **[2, 2006.01]**

5/134 • • • • including a threaded mounting member **[2, 2006.01]**

5/136 • • plural reflecting elements forming part of a unitary body (G02B 5/124 takes precedence) **[2, 2006.01]**

5/18 • Diffracting gratings **[1, 2006.01]**

5/20 • Filters (polarising elements G02B 5/30; filters specially adapted for photographic purposes G03B 11/00) **[1, 2006.01]**

5/22 • • Absorbing filters **[1, 2006.01]**

5/23 • • • Photochromic filters **[2, 2006.01]**

5/24 • • • Liquid filters (G02B 5/23 takes precedence) **[1, 2, 2006.01]**

5/26 • • Reflecting filters (G02B 5/28 takes precedence) **[1, 2006.01]**

5/28 • • Interference filters **[1, 2006.01]**

5/30 • Polarising elements (light-modulating devices G02F 1/00) **[1, 2006.01]**

5/32 • Holograms used as optical elements (processes or apparatus for producing holograms G03H) **[2, 2006.01]**

6/00 **Light guides; Structural details of arrangements comprising light guides and other optical elements, e.g. couplings [4, 6, 2006.01]**

6/02 • Optical fibre with cladding (mechanical structures for providing tensile strength and external protection G02B 6/44) **[4, 2006.01]**

6/024 • • with polarisation-maintaining properties **[2006.01]**

6/028 • • with core or cladding having graded refractive index **[2006.01]**

6/032 • • with non-solid core or cladding **[2006.01]**

6/036 • • core or cladding comprising multiple layers **[2006.01]**

6/04 • formed by bundles of fibres (G02B 6/24 takes precedence) **[4, 2006.01]**

6/06 • • the relative position of the fibres being the same at both ends, e.g. for transporting images **[4, 2006.01]**

6/08 • • • with fibre bundle in form of plate **[4, 2006.01]**

6/10 • of the optical waveguide type (G02B 6/02, G02B 6/24 take precedence; devices or arrangements for the control of light by electric, magnetic, electro-magnetic or acoustic means G02F 1/00; transferring the modulation of modulated light G02F 2/00; optical logic elements G02F 3/00; optical analogue/digital converters G02F 7/00; stores using opto-electronic devices G11C 11/42; electric waveguides H01P; transmission of information by optical means H04B 10/00; multiplex systems H04J 14/00) **[4, 2006.01]**

6/12 • • of the integrated circuit kind (production or processing of single crystals C30B; electric integrated circuits H01L 27/00) **[4, 2006.01]**

6/122 • • • Basic optical elements, e.g. light-guiding paths **[6, 2006.01]**

6/124 • • • • Geodesic lenses or integrated gratings **[6, 2006.01]**

6/125 • • • • Bends, branchings or intersections **[6, 2006.01]**

6/126 • • • using polarisation effects **[6, 2006.01]**

6/13 • • • Integrated optical circuits characterised by the manufacturing method **[6, 2006.01]**

6/132 • • • • by deposition of thin films **[6, 2006.01]**

6/134 • • • • by substitution by dopant atoms **[6, 2006.01]**

6/136 • • • • by etching **[6, 2006.01]**

6/138 • • • • by using polymerisation **[6, 2006.01]**

6/14 • • Mode converters **[4, 2006.01]**

6/24 • Coupling light guides (for electric waveguides H01P 1/00) **[4, 5, 2006.01]**

6/245 • • Removing protective coverings of light guides before coupling **[5, 2006.01]**

6/25 • • Preparing the ends of light guides for coupling, e.g. cutting **[5, 2006.01]**

6/255 • • Splicing of light guides, e.g. by fusion or bonding **[5, 2006.01]**

6/26 • • Optical coupling means (G02B 6/36, G02B 6/42 take precedence) **[4, 2006.01]**

6/27 • • • with polarisation selective and adjusting means (polarisation elements in general G02B 5/30; polarisation systems in general G02B 27/28; optical polarisation multiplex systems H04J 14/06) **[6, 2006.01]**

6/28 • • • having data bus means, i.e. plural waveguides interconnected and providing an inherently bidirectional system by mixing and splitting signals **[4, 2006.01]**

6/287 • • • • Structuring of light guides to shape optical elements with heat application (G02B 6/255 takes precedence) **[6, 2006.01]**

6/293 • • • • with wavelength selective means (for optical elements in use, see the relevant subgroups of this subclass; optical wavelength-division multiplexing systems H04J 14/02) **[6, 2006.01]**

6/30 • • • for use between fibre and thin-film device **[4, 2006.01]**

6/32 • • • having lens focusing means **[4, 2006.01]**

6/34 • • • utilising prism or grating **[4, 2006.01]**
6/35 • • • having switching means (optical switching in general G02B 26/08; by changing the optical properties of the medium G02F 1/00) **[6, 2006.01]**
6/36 • • Mechanical coupling means (G02B 6/255, G02B 6/42 take precedence) **[4, 5, 2006.01]**
6/38 • • • having fibre to fibre mating means **[4, 2006.01]**
6/40 • • • having fibre bundle mating means **[4, 2006.01]**
6/42 • • Coupling light guides with opto-electronic elements **[4, 2006.01]**
6/43 • • • Arrangements comprising a plurality of opto-electronic elements and associated optical interconnections (light-emissive or light-sensitive semiconductor devices H01L 27/00, H01L 31/00, H01L 33/00; semiconductor lasers monolithically integrated with other components H01S 5/026) **[6, 2006.01]**
6/44 • Mechanical structures for providing tensile strength and external protection for fibres, e.g. optical transmission cables (cables incorporating electric conductors and optical fibres H01B 11/22) **[4, 2006.01]**
6/46 • Processes or apparatus adapted for installing optical fibres or optical cables (installation of cables containing electric conductors and optical fibres H02G) **[6, 2006.01]**
6/48 • • Overhead installation **[6, 2006.01]**
6/50 • • Underground or underwater installation; Installation through tubing, conduits or ducts **[6, 2006.01]**
6/52 • • • using fluid, e.g. air **[6, 2006.01]**
6/54 • • • using mechanical means, e.g. pulling or pushing devices **[6, 2006.01]**

7/00 Mountings, adjusting means, or light-tight connections, for optical elements [1, 2006.01]

7/02 • for lenses **[1, 2006.01]**
7/04 • • with mechanism for focusing or varying magnification **[1, 2, 2006.01]**
7/06 • • • Focusing binocular pairs **[1, 2006.01]**
7/08 • • • adapted to co-operate with a remote control mechanism **[1, 2006.01]**
7/09 • • • adapted for automatic focusing or varying magnification (automatic generation of focusing signals G02B 7/28) **[5, 2006.01]**
7/10 • • • by relative axial movement of several lenses, e.g. of varifocal objective lens **[1, 2006.01]**
7/105 • • • • with movable lens means specially adapted for focusing at close distances **[4, 2006.01]**
7/12 • • Adjusting pupillary distance of binocular pairs **[1, 2006.01]**
7/14 • • adapted to interchange lenses **[1, 2006.01]**
7/16 • • • Rotatable turrets **[1, 2006.01]**
7/18 • for prisms; for mirrors **[1, 2006.01]**
7/182 • • for mirrors (optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light G02B 26/00) **[5, 2006.01]**
7/183 • • • specially adapted for very large mirrors, e.g. for astronomy (G02B 7/185, G02B 7/192, G02B 7/198 take precedence) **[6, 2006.01]**
7/185 • • • with means for adjusting the shape of the mirror surface (mirrors with curved faces G02B 5/10) **[5, 2006.01]**
7/188 • • • • Membrane mirrors **[5, 2006.01]**
7/192 • • • with means for minimising internal mirror stresses **[5, 2006.01]**
7/195 • • • • Fluid-cooled mirrors **[5, 2006.01]**
7/198 • • • with means for adjusting the mirror relative to its support **[5, 2006.01]**
7/20 • Light-tight connections for movable optical elements **[1, 2006.01]**
7/22 • • Extensible connections, e.g. bellows **[1, 2006.01]**
7/24 • • Pivoted connections **[1, 2006.01]**
7/28 • Systems for automatic generation of focusing signals (measuring distance per se G01C, G01S; using such signals to control focus of particular apparatus, see the subclasses for the apparatus, e.g. G03B, G03F) **[5, 2006.01]**
7/30 • • using parallactic triangle with a base line **[5, 2006.01]**
7/32 • • • using active means, e.g. light emitter **[5, 2006.01]**
7/34 • • using different areas in a pupil plane **[5, 2006.01]**
7/36 • • using image sharpness techniques **[5, 2006.01]**
7/38 • • • measured at different points on the optical axis **[5, 2006.01]**
7/40 • • using time delay of the reflected waves, e.g. of ultrasonic waves **[5, 2006.01]**

9/00 Optical objectives characterised both by the number of the components and their arrangements according to their sign, i.e. + or – (G02B 13/00, G02B 15/00 take precedence) **[1, 2006.01]**

Note(s)

In this group, a component is deemed to be a simple lens or a compound lens or a divided lens equivalent to a simple or to a compound lens.

9/02 • having one + component only (simple lenses G02B 3/00) **[1, 2006.01]**
9/04 • having two components only **[1, 2006.01]**
9/06 • • two + components **[1, 2006.01]**
9/08 • • • arranged about a stop **[1, 2006.01]**
9/10 • • one + and one – component **[1, 2006.01]**
9/12 • having three components only **[1, 2006.01]**
9/14 • • arranged + – + **[1, 2006.01]**
9/16 • • • all the components being simple **[1, 2006.01]**
9/18 • • • only one component having a compound lens (G02B 9/30 takes precedence) **[1, 2006.01]**
9/20 • • • • the rear component having the compound **[1, 2006.01]**
9/22 • • • • the middle component having the compound **[1, 2006.01]**
9/24 • • • two of the components having compound lenses (G02B 9/30 takes precedence) **[1, 2006.01]**
9/26 • • • • the front and rear components having compound lenses **[1, 2006.01]**
9/28 • • • • the middle and rear components having compound lenses **[1, 2006.01]**
9/30 • • • the middle component being a – compound meniscus having a + lens **[1, 2006.01]**
9/32 • • • • the + lens being a meniscus **[1, 2006.01]**
9/34 • having four components only **[1, 2006.01]**
9/36 • • arranged + — + **[1, 2006.01]**

Note(s)

In this group, the first place priority rule is applied.

9/38 • • • both – components being meniscus **[1, 2006.01]**
9/40 • • • • one – component being compound **[1, 2006.01]**

9/42 • • • • two – components being compound **[1, 2006.01]**
9/44 • • • both – components being biconcave **[1, 2006.01]**
9/46 • • • • one – component being compound **[1, 2006.01]**
9/48 • • • • two – components being compound **[1, 2006.01]**
9/50 • • • both + components being meniscus **[1, 2006.01]**
9/52 • • • the rear + component being compound **[1, 2006.01]**
9/54 • • • the front + component being compound **[1, 2006.01]**
9/56 • • • all components being simple lenses **[1, 2006.01]**
9/58 • • arranged – + + – **[1, 2006.01]**
9/60 • having five components only **[1, 2006.01]**
9/62 • having six components only **[1, 2006.01]**
9/64 • having more than six components **[1, 2006.01]**

11/00 Optical objectives characterised by the total number of simple and compound lenses forming the objective and their arrangement (G02B 9/00 takes precedence; having only one simple lens G02B 3/00) **[1, 2006.01]**

Note(s)

In groups G02B 11/02-G02B 11/34, lenses in broken contact are counted separately. Simple lenses are denoted by L, compound lenses by C, and the front lens is mentioned first.

11/02 • having two lenses only **[1, 2006.01]**
11/04 • • arranged C C **[1, 2006.01]**
11/06 • having three lenses only **[1, 2006.01]**
11/08 • • arranged L L L **[1, 2006.01]**
11/10 • • arranged L C L **[1, 2006.01]**
11/12 • • arranged L L C **[1, 2006.01]**
11/14 • • arranged C L C **[1, 2006.01]**
11/16 • • arranged C C L **[1, 2006.01]**
11/18 • • arranged C C C **[1, 2006.01]**
11/20 • having four lenses only **[1, 2006.01]**
11/22 • • arranged L L L L **[1, 2006.01]**
11/24 • • arranged C L L C **[1, 2006.01]**
11/26 • • arranged L C C L **[1, 2006.01]**
11/28 • • arranged C C C C **[1, 2006.01]**
11/30 • having five lenses only **[1, 2006.01]**
11/32 • having six lenses only **[1, 2006.01]**
11/34 • having more than six lenses **[1, 2006.01]**

13/00 Optical objectives specially designed for the purposes specified below (with variable magnification G02B 15/00) **[1, 2006.01]**

13/02 • Telephoto objectives, i.e. systems of the type + – in which the distance from the front vertex to the image plane is less than the equivalent focal length **[1, 2006.01]**
13/04 • Reversed telephoto objectives **[1, 2006.01]**
13/06 • Panoramic objectives; So-called "sky lenses" **[1, 2006.01]**
13/08 • Anamorphotic objectives **[1, 2006.01]**
13/10 • • involving prisms (G02B 13/12 takes precedence) **[1, 2006.01]**
13/12 • • with variable magnification **[1, 2006.01]**
13/14 • for use with infra-red or ultra-violet radiation (G02B 13/16 takes precedence) **[1, 2006.01]**
13/16 • for use in conjunction with image converters or intensifiers **[1, 2006.01]**
13/18 • with lenses having one or more non-spherical faces, e.g. for reducing geometrical aberration **[1, 2006.01]**
13/20 • Soft-focus objectives (diffusing elements in general G02B 5/02) **[1, 2006.01]**
13/22 • Telecentric objectives or lens systems **[1, 2006.01]**
13/24 • for reproducing or copying at short object distances **[1, 2006.01]**
13/26 • • for reproducing with unit magnification **[3, 2006.01]**

15/00 Optical objectives with means for varying the magnification (anamorphotic objectives G02B 13/08) **[1, 2006.01]**

15/02 • by changing, adding, or subtracting a part of the objective, e.g. convertible objective **[1, 2006.01]**
15/04 • • by changing a part **[1, 2006.01]**
15/06 • • • by changing the front part **[1, 2006.01]**
15/08 • • • by changing the rear part **[1, 2006.01]**
15/10 • • by adding a part, e.g. close-up attachment **[1, 2006.01]**
15/12 • • • by adding telescopic attachments (G02B 15/14 takes precedence) **[1, 2006.01]**
15/14 • by axial movement of one or more lenses or groups of lenses relative to the image plane for continuously varying the equivalent focal length of the objective **[1, 4, 2006.01]**
15/15 • • compensation by means of only one movement or by means of only linearly related movements, e.g. optical compensation **[4, 2006.01]**
15/16 • • with interdependent non-linearly related movements between one lens or lens group, and another lens or lens group (G02B 15/22 takes precedence) **[1, 4, 2006.01]**
15/163 • • • having a first movable lens or lens group and a second movable lens or lens group, both in front of a fixed lens or lens group (G02B 15/177 takes precedence) **[4, 2006.01]**
15/167 • • • • having an additional fixed front lens or group of lenses **[4, 2006.01]**
15/17 • • • • • arranged + — **[4, 2006.01]**
15/173 • • • • • arranged + – + **[4, 2006.01]**
15/177 • • • having a negative front lens or group of lenses **[4, 2006.01]**
15/20 • • • having an additional movable lens or lens group for varying the objective focal length **[4, 2006.01]**
15/22 • • with movable lens means specially adapted for focusing at close distances **[4, 2006.01]**
15/24 • • • having a front fixed lens or lens group and two movable lenses or lens groups in front of a fixed lens or lens group **[4, 2006.01]**
15/26 • • • • arranged + — **[4, 2006.01]**
15/28 • • • • arranged + – + **[4, 2006.01]**

17/00 Systems with reflecting surfaces, with or without refracting elements (microscopes G02B 21/00; telescopes, periscopes G02B 23/00; beam shaping not otherwise provided for G02B 27/09; for beam splitting or combining G02B 27/10; for optical projection G02B 27/18) **[1, 6, 2006.01]**

17/02 • Catoptric systems, e.g. image erecting and reversing system **[1, 2006.01]**
17/04 • • using prisms only **[1, 2006.01]**
17/06 • • using mirrors only **[1, 2006.01]**
17/08 • Catadioptric systems **[1, 2006.01]**

19/00 **Condensers** (for microscopes G02B 21/08) **[1, 2006.01]**

21/00 **Microscopes** (eyepieces G02B 25/00; polarising systems G02B 27/28; measuring microscopes G01B 9/04; microtomes G01N 1/06; scanning-probe techniques or apparatus G01Q) **[1, 7, 2006.01]**

21/02 • Objectives **[1, 2006.01]**

21/04 • • involving mirrors **[1, 2006.01]**

21/06 • Means for illuminating specimen **[1, 2006.01]**

21/08 • • Condensers **[1, 2006.01]**

21/10 • • • affording dark-field illumination (G02B 21/14 takes precedence) **[1, 2006.01]**

21/12 • • • affording bright-field illumination (G02B 21/14 takes precedence) **[1, 2006.01]**

21/14 • • • affording illumination for phase-contrast observation **[1, 2006.01]**

21/16 • adapted for ultra-violet illumination **[1, 2006.01]**

21/18 • Arrangements with more than one light-path, e.g. for comparing two specimens **[1, 2006.01]**

21/20 • • Binocular arrangements **[1, 2006.01]**

21/22 • • • Stereoscopic arrangements **[1, 2006.01]**

21/24 • Base structure **[1, 2006.01]**

21/26 • • Stages; Adjusting means therefor **[1, 2006.01]**

21/28 • • with cooling device **[1, 2006.01]**

21/30 • • with heating device **[1, 2006.01]**

21/32 • Micromanipulators structurally combined with microscopes **[1, 2006.01]**

21/33 • Immersion oils **[6, 2006.01]**

21/34 • Microscope slides, e.g. mounting specimens on microscope slides (preparing specimens for investigation G01N 1/28; means for supporting the objects or the materials to be analysed in electron microscopes H01J 37/20) **[1, 2006.01]**

21/36 • arranged for photographic purposes or projection purposes (G02B 21/18 takes precedence) **[1, 2006.01]**

23/00 **Telescopes, e.g. binoculars** (measuring telescopes G01B 9/06)**; Periscopes; Instruments for viewing the inside of hollow bodies** (diagnostic instruments A61B)**; Viewfinders** (objectives G02B 9/00, G02B 11/00, G02B 15/00, G02B 17/00; eyepieces G02B 25/00)**; Optical aiming or sighting devices** (non-optical aspects of weapon aiming or sighting devices F41G) **[1, 4, 2006.01]**

23/02 • involving prisms or mirrors (G02B 23/14 takes precedence) **[1, 2006.01]**

23/04 • • for the purpose of beam splitting or combining, e.g. fitted with eyepieces for more than one observer (G02B 23/10 takes precedence) **[1, 2006.01]**

23/06 • • having a focusing action, e.g. parabolic mirror **[1, 2006.01]**

23/08 • • Periscopes **[1, 2006.01]**

23/10 • • reflecting into the field of view additional indications, e.g. from collimator (collimators in general G02B 27/30; graticules G02B 27/34) **[1, 2006.01]**

23/12 • with means for image conversion or intensification (objectives for image conversion or intensification G02B 13/16; electrical image converters with optical input and optical output H01J 31/50) **[1, 2006.01]**

23/14 • Viewfinders (for photographic apparatus G03B 13/02) **[1, 2006.01]**

23/16 • Housings; Caps; Mountings; Supports, e.g. with counterweight (cases or receptacles A45C) **[1, 2006.01]**

23/18 • • for binocular arrangements **[1, 2006.01]**

23/20 • • Collapsible housings (G02B 23/18 takes precedence) **[1, 2006.01]**

23/22 • • Underwater equipments, e.g. for submarine periscope **[1, 2006.01]**

23/24 • Instruments for viewing the inside of hollow bodies, e.g. fibrescopes **[4, 2006.01]**

23/26 • • using light guides **[4, 2006.01]**

25/00 **Eyepieces; Magnifying glasses** (simple lenses G02B 3/00) **[1, 2006.01]**

25/02 • with means for illuminating object viewed **[1, 2006.01]**

25/04 • affording a wide-angle view, e.g. through a spy-hole **[1, 2006.01]**

26/00 **Optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light, e.g. switching, gating or modulating** (mechanically operable parts of lighting devices for the control of light order F21V; specially adapted for measuring characteristics of light G01J; devices or arrangements, the optical operation of which is modified by changing the optical properties of the medium of the devices or arrangements G02F 1/00; control of light in general G05D 25/00; control of light sources H01S 3/10, H05B 39/00-H05B 47/00) **[4, 2006.01]**

26/02 • for controlling the intensity of light **[4, 2006.01]**

26/04 • • by periodically varying the intensity of light, e.g. using choppers **[4, 2006.01]**

26/06 • for controlling the phase of light (G02B 26/08 takes precedence) **[4, 2006.01]**

26/08 • for controlling the direction of light (in light guides G02B 6/35) **[4, 2006.01]**

26/10 • • Scanning systems (for special applications, see the relevant places, e.g. G03B 27/32, G03F 3/08, G03G 15/04, G09G 3/00, H04N) **[4, 2006.01]**

26/12 • • • using multifaceted mirrors **[6, 2006.01]**

27/00 **Optical systems or apparatus not provided for by any of the groups G02B 1/00-G02B 26/00, G02B 30/00 [1, 2006.01]**

27/01 • Head-up displays **[6, 2006.01]**

27/02 • Viewing or reading apparatus (stereoscopic systems G02B 30/00; of the projection type G03B; slide-changing apparatus G03B) **[1, 2006.01]**

27/04 • • having collapsible parts **[1, 2006.01]**

27/06 • • with moving-picture effect **[1, 2006.01]**

27/08 • • Kaleidoscopes **[1, 2006.01]**

27/09 • Beam shaping, e.g. changing the cross-sectioned area, not otherwise provided for **[6, 2006.01]**

27/10 • Beam splitting or combining systems (mixing and splitting light signals using optical waveguides G02B 6/28; polarising systems G02B 27/28) **[1, 4, 2006.01]**

27/12 • • operating by refraction only **[1, 2006.01]**

27/14 • • operating by reflection only **[1, 2006.01]**

27/16 • • used as aids for focusing **[1, 2006.01]**

27/18 • for optical projection, e.g. combination of mirror and condenser and objective **[1, 2006.01]**

27/20 • • for imaging minute objects, e.g. light-pointer **[1, 2006.01]**

27/28 • for polarising (used in stereoscopes G02B 30/25) **[1, 2006.01]**

27/30 • Collimators **[1, 2006.01]**

27/32 • Fiducial marks or measuring scales within the optical system **[1, 2006.01]**

27/34 • • illuminated **[1, 2006.01]**
27/36 • • adjustable **[1, 2006.01]**
27/40 • Optical focusing aids (beam splitting or combining systems G02B 27/10) **[1, 2006.01]**
27/42 • Diffraction optics (G02B 27/60 takes precedence) **[3, 2006.01]**
27/44 • • Grating systems; Zone plate systems (G02B 27/46 takes precedence; spectrometry G01J) **[3, 2006.01]**
27/46 • • Systems using spatial filters (character recognition G06K 9/00) **[3, 2006.01]**

Note(s) [3]

In this group, the filter may be in any plane, e.g. the image or the Fourier transfer plane.

27/48 • Laser speckle optics (speckle suppression in holography G03H 1/32) **[3, 2006.01]**
27/50 • Optics for phase object visualisation (in microscopes G02B 21/14) **[3, 2006.01]**
27/52 • • Phase contrast optics **[3, 2006.01]**
27/54 • • Schlieren-optical systems **[3, 2006.01]**
27/56 • Optics using evanescent waves, i.e. inhomogeneous waves **[3, 2006.01]**
27/58 • Optics for apodization or superresolution; Optical synthetic aperture systems **[3, 2006.01]**
27/60 • Systems using moire fringes (means for converting the output of a sensing member using diffraction gratings G01D 5/38) **[3, 2006.01]**
27/62 • Optical apparatus specially adapted for adjusting optical elements during the assembly of optical systems (adjusting means being part of the system to be assembled G02B 7/00) **[3, 2006.01]**
27/64 • Imaging systems using optical elements for stabilisation of the lateral and angular position of the image (focusing systems G02B 7/04; adjustment of optical system relative to image or object surface G03B 5/00) **[3, 2006.01]**

30/00 ***Optical systems or apparatus for producing three-dimensional [3D] effects, e.g. stereoscopic images*** *(in microscopes G02B 21/22)* ***[2020.01]***
30/10 • *using integral imaging methods* ***[2020.01]***
30/20 • *by providing first and second parallax images to an observer's left and right eyes* ***[2020.01]***
30/22 • • *of the stereoscopic type* ***[2020.01]***
30/23 • • • *using wavelength separation, e.g. using anaglyph techniques* ***[2020.01]***
30/24 • • • *involving temporal multiplexing, e.g. using sequentially activated left and right shutters* ***[2020.01]***
30/25 • • • *using polarisation techniques* ***[2020.01]***
30/26 • • *of the autostereoscopic type* ***[2020.01]***
30/27 • • • *involving lenticular arrays* ***[2020.01]***
30/28 • • • • *involving active lenticular arrays* ***[2020.01]***
30/29 • • • • *characterised by the geometry of the lenticular array, e.g. slanted arrays, irregular arrays or arrays of varying shape or size* ***[2020.01]***
30/30 • • • *involving parallax barriers* ***[2020.01]***
30/31 • • • • *involving active parallax barriers (involving directional light or back-light sources G02B 30/33)* ***[2020.01]***
30/32 • • • • *characterised by the geometry of the parallax barriers, e.g. staggered barriers, slanted parallax arrays or parallax arrays of varying shape or size* ***[2020.01]***
30/33 • • • *involving directional light or back-light sources* ***[2020.01]***
30/34 • • *Stereoscopes providing a stereoscopic pair of separated images corresponding to parallactically displaced views of the same object, e.g. 3D slide viewers* ***[2020.01]***
30/35 • • • *using reflective optical elements in the optical path between the images and the observer* ***[2020.01]***
30/36 • • • *using refractive optical elements, e.g. prisms, in the optical path between the images and the observer* ***[2020.01]***
30/37 • • • *Collapsible stereoscopes* ***[2020.01]***
30/40 • *giving the observer of a single two-dimensional [2D] image a perception of depth* ***[2020.01]***
30/50 • *the image being built up from image elements distributed over a 3D volume, e.g. voxels* ***[2020.01]***
30/52 • • *the 3D volume being constructed from a stack or sequence of 2D planes, e.g. depth sampling systems* ***[2020.01]***
30/54 • • *the 3D volume being generated by moving a 2D surface, e.g. by vibrating or rotating the 2D surface* ***[2020.01]***
30/56 • • *by projecting aerial or floating images* ***[2020.01]***
30/60 • *involving reflecting prisms and mirrors only* ***[2020.01]***