

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)

- In this subclass, the following terms or expressions are used with the meanings indicated:
 - "simple lens or prism" means a single lens or prism;
 - "compound lens or prism" means an optical member, the constituents of which either are close together without air-space or (except in group G02B 11/00) are "in broken contact", i.e. with the air-space between the constituents having no essential optical influence;
 - "objective" means a lens or an optical system designed to produce a real image of a real object;
 - "eyepiece" means a lens or an optical system designed to produce a virtual image for viewing by the eye or by another optical system;
 - "front" or "rear" is determined by looking from the more distant conjugate.
- Attention is drawn to the Notes following the titles of class B81 and subclass B81B relating to "micro-structural devices" and "micro-structural 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

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	1/11	• • Anti-reflection coatings [6]
		1/12	• • by surface treatment, e.g. by irradiation
1/02	• made of crystals, e.g. rock-salt, semiconductors (G02B 1/08 takes precedence)	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)
1/04	• made of organic materials, e.g. plastics (G02B 1/08 takes precedence)	3/02	• with non-spherical faces (G02B 3/10 takes precedence)
1/06	• made of fluids in transparent cells	3/04	• • with continuous faces that are rotationally symmetrical but deviate from a true sphere
1/08	• made of polarising materials	3/06	• • with cylindrical or toric faces
1/10	• Optical coatings produced by application to, or surface treatment of, optical elements (G02B 1/08 takes precedence)	3/08	• • with discontinuous faces, e.g. Fresnel lens

- 3/10 • Bifocal lenses; Multifocal lenses
- 3/12 • Fluid-filled or evacuated lenses
- 3/14 • • of variable focal length
- 5/00 Optical elements other than lenses** (light guides G02B 6/00; optical logic elements G02F 3/00) [4]
- 5/02 • Diffusing elements; Afocal elements
- 5/04 • Prisms
- 5/06 • • Fluid-filled or evacuated prisms
- 5/08 • Mirrors
- 5/09 • • Multifaceted or polygonal mirrors [6]
- 5/10 • • with curved faces
- 5/12 • Reflex reflectors
- 5/122 • • cube corner, trihedral or triple reflector type [2]
- 5/124 • • • plural reflecting elements forming part of a unitary plate or sheet [2]
- 5/126 • • including curved refracting surface [2]
- 5/128 • • • transparent spheres being embedded in matrix [2]
- 5/13 • • • plural curved refracting elements forming part of a unitary body [2]
- 5/132 • • • with individual reflector mounting means [2]
- 5/134 • • • • including a threaded mounting member [2]
- 5/136 • • plural reflecting elements forming part of a unitary body (G02B 5/124 takes precedence) [2]
- 5/18 • Diffracting gratings
- 5/20 • Filters (polarising elements G02B 5/30; filters specially adapted for photographic purposes G03B 11/00)
- 5/22 • • Absorbing filters
- 5/23 • • • Photochromic filters [2]
- 5/24 • • • Liquid filters (G02B 5/23 takes precedence) [2]
- 5/26 • • Reflecting filters (G02B 5/28 takes precedence)
- 5/28 • • Interference filters
- 5/30 • Polarising elements (light-modulating devices G02F 1/00)
- 5/32 • Holograms used as optical elements (processes or apparatus for producing holograms G03H) [2]
- 6/00 Light guides; Structural details of arrangements comprising light guides and other optical elements, e.g. couplings [4, 6]**
- 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]
- 6/06 • • the relative position of the fibres being the same at both ends, e.g. for transporting images [4]
- 6/08 • • • with fibre bundle in form of plate [4]
- 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]
- 6/122 • • • Basic optical elements, e.g. light-guiding paths [6]
- 6/124 • • • • Geodesic lenses or integrated gratings [6]
- 6/125 • • • • Bends, branchings or intersections [6]
- 6/126 • • • using polarisation effects [6]
- 6/13 • • • Integrated optical circuits characterised by the manufacturing method [6]
- 6/132 • • • • by deposition of thin films [6]
- 6/134 • • • • by substitution by dopant atoms [6]
- 6/136 • • • • by etching [6]
- 6/138 • • • • by using polymerisation [6]
- 6/14 • • Mode converters [4]
- 6/24 • Coupling light guides (for electric waveguides H01P 1/00) [4, 5]
- 6/245 • • Removing protective coverings of light guides before coupling [5]
- 6/25 • • Preparing the ends of light guides for coupling, e.g. cutting [5]
- 6/255 • • Splicing of light guides, e.g. by fusion or bonding [5]
- 6/26 • • Optical coupling means (G02B 6/36, G02B 6/42 take precedence) [4]
- 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]
- 6/28 • • • having data bus means, i.e. plural waveguides interconnected and providing an inherently bidirectional system by mixing and splitting signals [4]
- 6/287 • • • • Structuring of light guides to shape optical elements with heat application (G02B 6/255 takes precedence) [6]
- 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]
- 6/30 • • • for use between fibre and thin-film device [4]
- 6/32 • • • having lens focusing means [4]
- 6/34 • • • utilising prism or grating [4]
- 6/35 • • • having switching means (optical switching in general G02B 26/08; by changing the optical properties of the medium G02F 1/00) [6]
- 6/36 • • Mechanical coupling means (G02B 6/255, G02B 6/42 take precedence) [4, 5]
- 6/38 • • • having fibre to fibre mating means [4]
- 6/40 • • • having fibre bundle mating means [4]
- 6/42 • • Coupling light guides with opto-electronic elements [4]

- 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]
- 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]
- 6/46 • Processes or apparatus adapted for installing optical fibres or optical cables (installation of cables containing electric conductors and optical fibres H02G) [6]
- 6/48 • • Overhead installation [6]
- 6/50 • • Underground or underwater installation; Installation through tubing, conduits or ducts [6]
- 6/52 • • • using fluid, e.g. air [6]
- 6/54 • • • using mechanical means, e.g. pulling or pushing devices [6]
- 7/00 Mountings, adjusting means, or light-tight connections, for optical elements**
- 7/02 • for lenses
- 7/04 • • with mechanism for focusing or varying magnification [2]
- 7/06 • • • Focusing binocular pairs
- 7/08 • • • adapted to co-operate with a remote control mechanism
- 7/09 • • • adapted for automatic focusing or varying magnification (automatic generation of focusing signals G02B 7/28) [5]
- 7/10 • • • by relative axial movement of several lenses, e.g. of varifocal objective lens
- 7/105 • • • • with movable lens means specially adapted for focusing at close distances [4]
- 7/12 • • Adjusting pupillary distance of binocular pairs
- 7/14 • • adapted to interchange lenses
- 7/16 • • • Rotatable turrets
- 7/18 • for prisms; for mirrors
- 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]
- 7/183 • • • specially adapted for very large mirrors, e.g. for astronomy (G02B 7/185, G02B 7/192, G02B 7/198 take precedence) [6]
- 7/185 • • • with means for adjusting the shape of the mirror surface (mirrors with curved faces G02B 5/10) [5]
- 7/188 • • • • Membrane mirrors [5]
- 7/192 • • • with means for minimising internal mirror stresses [5]
- 7/195 • • • • Fluid-cooled mirrors [5]
- 7/198 • • • with means for adjusting the mirror relative to its support [5]
- 7/20 • Light-tight connections for movable optical elements
- 7/22 • • Extensible connections, e.g. bellows
- 7/24 • • Pivoted connections
- 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]
- 7/30 • • using parallactic triangle with a base line [5]
- 7/32 • • • using active means, e.g. light emitter [5]
- 7/34 • • using different areas in a pupil plane [5]
- 7/36 • • using image sharpness techniques [5]
- 7/38 • • • measured at different points on the optical axis [5]
- 7/40 • • using time delay of the reflected waves, e.g. of ultrasonic waves [5]
- 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)**
- 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)
- 9/04 • having two components only
- 9/06 • • two + components
- 9/08 • • • arranged about a stop
- 9/10 • • one + and one – component
- 9/12 • having three components only
- 9/14 • • arranged + – +
- 9/16 • • • all the components being simple
- 9/18 • • • only one component having a compound lens (G02B 9/30 takes precedence)
- 9/20 • • • • the rear component having the compound
- 9/22 • • • • the middle component having the compound
- 9/24 • • • two of the components having compound lenses (G02B 9/30 takes precedence)
- 9/26 • • • • the front and rear components having compound lenses
- 9/28 • • • • the middle and rear components having compound lenses
- 9/30 • • • the middle component being a – compound meniscus having a + lens
- 9/32 • • • • the + lens being a meniscus
- 9/34 • having four components only
- 9/36 • • arranged + — +
- Note(s)**
- In this group, the first place priority rule is applied.
- 9/38 • • • both – components being meniscus
- 9/40 • • • • one – component being compound
- 9/42 • • • • two – components being compound
- 9/44 • • • both – components being biconcave
- 9/46 • • • • one – component being compound
- 9/48 • • • • two – components being compound
- 9/50 • • • both + components being meniscus
- 9/52 • • • the rear + component being compound
- 9/54 • • • the front + component being compound
- 9/56 • • • all components being simple lenses
- 9/58 • • arranged – + + –
- 9/60 • having five components only
- 9/62 • having six components only
- 9/64 • having more than six components
- 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)**

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
 - 11/04 • • arranged C C
 - 11/06 • having three lenses only
 - 11/08 • • arranged L L L
 - 11/10 • • arranged L C L
 - 11/12 • • arranged L L C
 - 11/14 • • arranged C L C
 - 11/16 • • arranged C C L
 - 11/18 • • arranged C C C
 - 11/20 • having four lenses only
 - 11/22 • • arranged L L L L
 - 11/24 • • arranged C L L C
 - 11/26 • • arranged L C C L
 - 11/28 • • arranged C C C C
 - 11/30 • having five lenses only
 - 11/32 • having six lenses only
 - 11/34 • having more than six lenses
- 13/00 Optical objectives specially designed for the purposes specified below** (with variable magnification G02B 15/00)
- 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
 - 13/04 • Reversed telephoto objectives
 - 13/06 • Panoramic objectives; So-called "sky lenses"
 - 13/08 • Anamorphic objectives
 - 13/10 • • involving prisms (G02B 13/12 takes precedence)
 - 13/12 • • with variable magnification
 - 13/14 • for use with infra-red or ultra-violet radiation (G02B 13/16 takes precedence)
 - 13/16 • for use in conjunction with image converters or intensifiers
 - 13/18 • with lenses having one or more non-spherical faces, e.g. for reducing geometrical aberration
 - 13/20 • Soft-focus objectives (diffusing elements in general G02B 5/02)
 - 13/22 • Telecentric objectives or lens systems
 - 13/24 • for reproducing or copying at short object distances
 - 13/26 • • for reproducing with unit magnification [3]
- 15/00 Optical objectives with means for varying the magnification** (anamorphic objectives G02B 13/08)
- 15/02 • by changing, adding, or subtracting a part of the objective, e.g. convertible objective
 - 15/04 • • by changing a part
 - 15/06 • • • by changing the front part
 - 15/08 • • • by changing the rear part
 - 15/10 • • by adding a part, e.g. close-up attachment
 - 15/12 • • • by adding telescopic attachments (G02B 15/14 takes precedence)
 - 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 [4]
 - 15/15 • • compensation by means of only one movement or by means of only linearly related movements, e.g. optical compensation [4]

- 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) [4]
- 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]
- 15/167 • • • having an additional fixed front lens or group of lenses [4]
- 15/17 • • • • arranged + — [4]
- 15/173 • • • • arranged + – + [4]
- 15/177 • • • having a negative front lens or group of lenses [4]
- 15/20 • • • having an additional movable lens or lens group for varying the objective focal length [4]
- 15/22 • • with movable lens means specially adapted for focusing at close distances [4]
- 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]
- 15/26 • • • • arranged + — [4]
- 15/28 • • • • arranged + – + [4]

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) [6]

- 17/02 • Catoptric systems, e.g. image erecting and reversing system
- 17/04 • • using prisms only
- 17/06 • • using mirrors only
- 17/08 • Catadioptric systems

19/00 Condensers (for microscopes G02B 21/08)

- 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]
- 21/02 • Objectives
 - 21/04 • • involving mirrors
 - 21/06 • Means for illuminating specimen
 - 21/08 • • Condensers
 - 21/10 • • • affording dark-field illumination (G02B 21/14 takes precedence)
 - 21/12 • • • affording bright-field illumination (G02B 21/14 takes precedence)
 - 21/14 • • • affording illumination for phase-contrast observation
 - 21/16 • adapted for ultra-violet illumination
 - 21/18 • Arrangements with more than one light-path, e.g. for comparing two specimens
 - 21/20 • • Binocular arrangements
 - 21/22 • • • Stereoscopic arrangements
 - 21/24 • Base structure
 - 21/26 • • Stages; Adjusting means therefor
 - 21/28 • • with cooling device
 - 21/30 • • with heating device
 - 21/32 • Micromanipulators structurally combined with microscopes
 - 21/33 • Immersion oils [6]

- 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)
- 21/36 • arranged for photographic purposes or projection purposes (G02B 21/18 takes precedence)
- 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) [4]
- 23/02 • involving prisms or mirrors (G02B 23/14 takes precedence)
- 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)
- 23/06 • • having a focusing action, e.g. parabolic mirror
- 23/08 • • Periscopes
- 23/10 • • reflecting into the field of view additional indications, e.g. from collimator (collimators in general G02B 27/30; graticules G02B 27/34)
- 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)
- 23/14 • Viewfinders (for photographic apparatus G03B 13/02)
- 23/16 • Housings; Caps; Mountings; Supports, e.g. with counterweight (cases or receptacles A45C)
- 23/18 • • for binocular arrangements
- 23/20 • • Collapsible housings (G02B 23/18 takes precedence)
- 23/22 • • Underwater equipments, e.g. for submarine periscope
- 23/24 • Instruments for viewing the inside of hollow bodies, e.g. fibrescopes [4]
- 23/26 • • using light guides [4]
- 25/00 Eyepieces; Magnifying glasses** (simple lenses G02B 3/00)
- 25/02 • with means for illuminating object viewed
- 25/04 • affording a wide-angle view, e.g. through a spy-hole
- 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, 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 37/00-H05B 43/00) [4]
- 26/02 • for controlling the intensity of light [4]
- 26/04 • • by periodically varying the intensity of light, e.g. using choppers [4]
- 26/06 • for controlling the phase of light (G02B 26/08 takes precedence) [4]
- 26/08 • for controlling the direction of light (in light guides G02B 6/35) [4]
- 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]
- 26/12 • • • using multifaceted mirrors [6]
- 27/00 Other optical systems; Other optical apparatus** (means for bringing-about special optical effects in shop-windows, showcases A47F, e.g. A47F 11/06; optical toys A63H 33/22; designs or pictures characterised by special light effects B44F 1/00)
- 27/01 • Head-up displays [6]
- 27/02 • Viewing or reading apparatus (stereoscopic systems G02B 27/22; of the projection type G03B; slide-changing apparatus G03B)
- 27/04 • • having collapsible parts
- 27/06 • • with moving-picture effect
- 27/08 • • Kaleidoscopes
- 27/09 • Beam shaping, e.g. changing the cross-sectioned area, not otherwise provided for [6]
- 27/10 • Beam splitting or combining systems (mixing and splitting light signals using optical waveguides G02B 6/28; polarising systems G02B 27/28) [4]
- 27/12 • • operating by refraction only
- 27/14 • • operating by reflection only
- 27/16 • • used as aids for focusing
- 27/18 • for optical projection, e.g. combination of mirror and condenser and objective
- 27/20 • • for imaging minute objects, e.g. light-pointer
- 27/22 • for producing stereoscopic or other three-dimensional effects (in microscopes G02B 21/22; viewing apparatus G02B 27/02)
- 27/24 • • involving reflecting prisms and mirrors only
- 27/26 • • involving polarising means
- 27/28 • for polarising (used in stereoscopes G02B 27/26)
- 27/30 • Collimators
- 27/32 • Fiducial marks or measuring scales within the optical system
- 27/34 • • illuminated
- 27/36 • • adjustable
- 27/40 • Optical focusing aids (beam splitting or combining systems G02B 27/10)
- 27/42 • Diffraction optics (G02B 27/60 takes precedence) [3]
- 27/44 • • Grating systems; Zone plate systems (G02B 27/46 takes precedence; spectrometry G01J) [3]
- 27/46 • • Systems using spatial filters (character recognition G06K 9/00) [3]
- Note(s)**
- 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]
- 27/50 • Optics for phase object visualisation (in microscopes G02B 21/14) [3]
- 27/52 • • Phase contrast optics [3]
- 27/54 • • Schlieren-optical systems [3]
- 27/56 • Optics using evanescent waves, i.e. inhomogeneous waves [3]
- 27/58 • Optics for apodization or superresolution; Optical synthetic aperture systems [3]
- 27/60 • Systems using moire fringes (means for converting the output of a sensing member using diffraction gratings G01D 5/38) [3]
- 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]

G02B

- 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]