

**CPC****COOPERATIVE PATENT CLASSIFICATION****G03B**

**APPARATUS OR ARRANGEMENTS FOR TAKING PHOTOGRAPHS OR FOR PROJECTING OR VIEWING THEM; APPARATUS OR ARRANGEMENTS EMPLOYING ANALOGOUS TECHNIQUES USING WAVES OTHER THAN OPTICAL WAVES; ACCESSORIES THEREFOR** (optical parts of such apparatus [G02B](#); systems for automatic generation of focusing signals for optical elements per se [G02B 7/28](#); photosensitive materials or processes for photographic purposes [G03C](#); apparatus for processing exposed photographic materials [G03D](#))

**NOTES**

1. This subclass covers, as far as processes are concerned, only processes characterised by the use or manipulation of apparatus classifiable per se in this subclass.
2. This subclass covers:
  - apparatus or methods for taking photographs using light sensitive film for image capture, apparatus, or methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, or their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;
  - aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they correspond to those of said apparatus or methods for taking photographs using light sensitive film, i.e. insofar not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, or their related controls insofar they are not peculiar to the presence of the EIS, e.g. exposure, focus, (opto-) mechanical motion blur (anti-shake);
  - aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus or methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, or their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;
  - (opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;
  - optical viewfinders;
  - remote control of cameras and projectors insofar not peculiar to the EIS or ESLM;
  - optical aspects of camera modules using electronic image sensors or related constructional details;
  - constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM.
3. This subclass does not cover:
  - concerning cameras or projectors:
    - arrangements or methods for image capture peculiar to the presence or use of an EIS or image projection peculiar to the presence or use of an ESLM, and their related controls insofar they are peculiar to the presence or use of the EIS or ESLM, which are covered by [H04N](#);

G03B

(continued)

- processing of electrical image signals from the EIS or provided to the ESLM, which is covered by [H04N](#);
  - electronic viewfinders, e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS, which are covered by [H04N](#);
  - electrical or mechanical aspects of camera modules using electronic image sensors and related constructional details as in webcams or mobile phones, which are covered by [H04M](#), [H04N](#);
  - details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM, which are covered by [H04N](#);
  - remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated electrical image signal, which is covered by [H04N](#);
  - adaptations peculiar to the use of an EIS or ESLM or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS. which are covered by [H04N](#);
  - video cameras, TV cameras, e.g. in studios, CCTV cameras, surveillance cameras and camcorders; constructional and mechanical details related to such cameras, e.g. housings, even when not peculiar to the presence of an EIS, which are covered by [H04N 5/225](#);
  - systems or apparatus wherein the inventive contribution lies in features covered above, concerning cameras when interacting with those to be covered by [G03B](#), e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic-motion blur correction of the electronic image signal based on output signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS, which are covered by [H04N](#).
  - EIS-sensor read-out, which is covered by [H04N 5/335](#);
  - processing or use of electrical image signals from the EIS for the generation of camera control signals. e.g. focusing, exposure control, electronic blur correction, display in electronic viewfinder, which are covered by [H04N 5/232](#), [H04N 5/235](#).
  - optical parts for apparatus or arrangements for taking photographs or for projecting or viewing them, which are covered by [G02B](#);
  - photosensitive materials for photographic purposes, which are covered by [G03C](#);
  - apparatus for processing exposed photographic materials; accessories therefor, which are covered by [G03D](#).
  - optical elements or arrangements associated with solid state imager structures, which are covered by [H01L 27/146](#);
4. In this subclass the following expression is used with the meaning indicated: subject to the application of Notes 1 and 2 above, "photography" is the process of recording pictures by means of capturing light on a light-sensitive medium, e.g. silver halide based chemical or an electronic image sensor. Light patterns reflected or emitted from objects expose such a light sensitive medium during a timed exposure, usually through a photographic lens in a device known as a camera.
5. In this subclass, as in subclass [H04N](#), the following terms are used with the meaning indicated:

## G03B

(continued)

- "camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;
- "projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;
- "electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
- "additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
- "electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.]

**Details common to at least two of the following types of apparatus: cameras, projectors, printers**

(details common to cameras only [G03B 7/00](#) to [G03B 17/00](#), to projectors only [G03B 21/00](#), [G03B 23/00](#), to printers only [G03B 27/00](#))

**G03B 1/00****Film strip handling**

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|--|---|
| <p>G03B 1/02</p> <p>G03B 1/04</p> <p>G03B 1/06</p> <p>G03B 1/08</p> <p>G03B 1/10</p> <p>G03B 1/12</p> <p>G03B 1/14</p> <p>G03B 1/16</p> <p>G03B 1/18</p> <p>G03B 1/20</p> <p>G03B 1/22</p> <p>G03B 1/24</p> <p>G03B 1/26</p> <p>G03B 1/28</p> <p>G03B 1/30</p> <p>G03B 1/32</p> <p>G03B 1/34</p> <p>G03B 1/36</p> <p>G03B 1/38</p> <p>G03B 1/40</p> <p>G03B 1/42</p> | <ul style="list-style-type: none"> <li>• Moving film strip by pull on end thereof</li> <li>• . Pull exerted by take-up spool</li> <li>• . . rotated by lever operated ratchet and pawl</li> <li>• . . rotated by band, chain, rack, or other linear reciprocating operation</li> <li>• . . rotated by knob through gearing</li> <li>• . . rotated by motor, e.g. spring</li> <li>• . Special arrangements to ensure constant length of movement of film</li> <li>• . . by film-arresting pins</li> <li>• moving film strip by means which act on the film between the ends thereof</li> <li>• . Acting means</li> <li>• . . Claws or pins engaging holes in the film</li> <li>• . . Sprockets engaging holes in the film</li> <li>• . . Spiked wheels or pins not penetrating the film</li> <li>• . . Shuttle feed</li> <li>• . . Belt feed</li> <li>• . . Friction grippers or rollers</li> <li>• . . Beaters</li> <li>• . . Pneumatic acting means</li> <li>• . embodying Geneva motion, e.g. Maltese-cross gearing</li> <li>• embodying frictional coupling or clutches</li> <li>• Guiding, framing, or constraining film in desired position relative to lens system</li> </ul> |
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- G03B 1/44
  - • Guides engaging edge of film ([gates G03B 1/48](#))
- G03B 1/46
  - • Rollers engaging face of film, e.g. barrel, waisted, conical ([gates G03B 1/48](#))
- G03B 1/48
  - • Gates or pressure devices, e.g. plate
- G03B 1/50
  - • • adjustable or interchangeable, e.g. for different film widths
- G03B 1/52
  - • • Pneumatic pressure devices
- G03B 1/54
  - • Tensioning or loop-maintaining devices
- G03B 1/56
  - Threading; Loop forming
- G03B 1/58
  - • automatic
- G03B 1/60
  - Measuring or indicating length of the used or unused film; Counting number of exposures ([measuring length in general G01B](#))
- G03B 1/62
  - • involving locking or stop-motion devices
- G03B 1/64
  - • by means which ascertain the radius of the film coiled on a spool
- G03B 1/66
  - • Counting number of exposures ([counting mechanisms per se G06M](#))
- G03B 3/00**
  - **Focusing arrangements** ([focusing means, autofocus systems for cameras G03B 13/00](#); [means for automatic focusing of projectors G03B 21/53](#); [means for automatic focusing of projection-printing apparatus or copying cameras G03B 27/34, G03F](#))
- G03B 3/02
  - moving lens along baseboard
- G03B 3/04
  - adjusting position of image plane without moving lens
- G03B 3/06
  - • using movable reflectors to alter length of light path
- G03B 3/10
  - Power-operated focusing
- G03B 3/12
  - • adapted for remote control ([control systems in general G05](#))
- G03B 5/00**
  - **Adjustment of optical system relative to image or object surface other than for focusing**
- G03B 5/02
  - Lateral adjustment of lens
- G03B 5/04
  - Vertical adjustment of lens; Rising fronts
- G03B 5/06
  - Swinging lens about normal to the optical axis
- G03B 5/08
  - Swing backs

#### **Details common to cameras**

- G03B 7/00**
  - **Control of exposure by setting shutters, diaphragms or filters, separately or conjointly** ([control of exposure in television cameras by means of circuitry for compensating for variation in the brightness of the object H04N 5/235](#))

#### **WARNING**

Group [G03B 7/00](#) is impacted by reclassification into groups [G03B 7/01](#) and [G03B 7/30](#).

Groups [G03B 7/00](#), [G03B 7/01](#) and [G03B 7/30](#) should be considered in order to perform a complete search.

- G03B 7/003
  - {[setting of both shutter and diaphragm \(G03B 7/02 to G03B 7/22 take precedence\)](#)}

- G03B 7/006 . {setting of both diaphragm and distance ([G03B 7/02](#) to [G03B 7/22](#) take precedence)}
- G03B 7/01 . with selection of either manual or automatic mode
- WARNING**
- Group [G03B 7/01](#) is incomplete pending reclassification of documents from group [G03B 7/00](#).
- Groups [G03B 7/00](#) and [G03B 7/01](#) should be considered in order to perform a complete search.
- G03B 7/02 . Control effected by setting a graduated member on the camera in accordance with indication or reading afforded by a light meter, which may be either separate from or built into camera body
- G03B 7/04 . Control effected by hand adjustment of a member that senses indication of a pointer of a built-in light-sensitive device, e.g. by restoring point to a fixed associated reference mark
- G03B 7/06 . . by a follow-up movement of an associated reference mark to the pointer
- G03B 7/08 . Control effected solely on the basis of the response, to the intensity of the light received by the camera, of a built-in light-sensitive device
- G03B 7/0805 . . Setting of priority modes
- G03B 7/0807 . . {Control circuits ([G03B 7/10](#) takes precedence)}
- (Frozen)
- WARNING**
- Group [G03B 7/0807](#) is no longer used for the classification of documents as of July 1, 2014. The content of this group is being reclassified into groups [G03B 7/081](#) - [G03B 7/097](#).
- Until reclassification is complete, groups [G03B 7/0807](#) and [G03B 7/081](#) - [G03B 7/097](#) should be considered in order to perform a complete search.
- G03B 7/081 . . Analogue circuits
- WARNING**
- Groups [G03B 7/081](#) - [G03B 7/089](#) are incomplete pending reclassification of documents from group [G03B 7/0807](#).
- Group [G03B 7/0807](#) should be considered when searching any group of the range [G03B 7/081](#) - [G03B 7/089](#) in order to perform a complete search.
- G03B 7/083 . . . for control of exposure time
- G03B 7/085 . . . for control of aperture
- G03B 7/087 . . . for control of both exposure time and aperture
- G03B 7/089 . . . for storage of exposure value in mirror reflex cameras

G03B 7/091

- . . Digital circuits

**WARNING**

Groups [G03B 7/091](#) - [G03B 7/097](#) are incomplete pending reclassification of documents from group [G03B 7/0807](#).

Group [G03B 7/0807](#) should be considered when searching any group of the range [G03B 7/091](#) - [G03B 7/097](#) in order to perform a complete search.

G03B 7/093

- . . . for control of exposure time

G03B 7/095

- . . . for control of aperture

G03B 7/097

- . . . for control of both exposure time and aperture

G03B 7/099

- . . Arrangement of photoelectric elements in or on the camera

G03B 7/09908

- . . . {on the camera or in the objective}

G03B 7/0993

- . . . in the camera

G03B 7/0997

- . . . . Through the lens [TTL] measuring

G03B 7/09971

- . . . . . {in mirror-reflex cameras ([G03B 7/09979](#) takes precedence)}

G03B 7/09972

- . . . . . {using the mirror as sensor light reflecting or transmitting member}

G03B 7/09973

- . . . . . {using the mirror as sensor}

G03B 7/09974

- . . . . . {using the film or shutter as sensor light reflecting member}

G03B 7/09976

- . . . . . {the sensor being mounted in, before, or behind the porro-prism}

G03B 7/09977

- . . . . . {with a movable light-measuring element}

G03B 7/09978

- . . . . . {Protection against viewer backlight or integration of the viewer light into the measured light}

G03B 7/09979

- . . . . . {Multi-zone light measuring}

G03B 7/10

- . . a servo-motor providing energy to move the setting member

G03B 7/12

- . . a hand-actuated member moved from one position to another providing the energy to move the setting member, e.g. depression of shutter release button causes a stepped feeler to co-operate with the pointer of the light-sensitive device to set the diaphragm and thereafter release the shutter

G03B 7/14

- . . . setting of both shutter and diaphragm aperture being effected so as to give the optimum compromise between depth of field and shortness of exposure

G03B 7/16

- . in accordance with both the intensity of the flash source and the distance of the flash source from the object, e.g. in accordance with the "guide number" of the flash bulb and the focusing of the camera

**WARNING**

Group [G03B 7/16](#) is impacted by reclassification into group [G03B 7/17](#).

Groups [G03B 7/16](#) and [G03B 7/17](#) should be considered in order to perform a complete search.

- G03B 7/17 . . Selection of modes in flash units by exposure control arrangements

**WARNING**

Group [G03B 7/17](#) is incomplete pending reclassification of documents from group [G03B 7/16](#).

Groups [G03B 7/16](#) and [G03B 7/17](#) should be considered in order to perform a complete search.

- G03B 7/18 . in accordance with light-reducing "factor" of filter or other obturator used with or on the lens of the camera
- G03B 7/20 . in accordance with change of lens
- G03B 7/22 . in accordance with temperature or height, e.g. in aircraft
- G03B 7/24 . automatically in accordance with markings or other means indicating film speed or kind of film on the magazine to be inserted in the camera
- G03B 7/26 . Power supplies; Circuitry or arrangement to switch on the power source; Circuitry to check the power source voltage
- G03B 7/28 . Circuitry to measure or to take account of the object contrast
- G03B 7/30 . Safety arrangements for control of exposure

**WARNING**

Group [G03B 7/30](#) is incomplete pending reclassification of documents from group [G03B 7/00](#).

Groups [G03B 7/00](#) and [G03B 7/30](#) should be considered in order to perform a complete search.

**G03B 9/00**

**Exposure-making shutters; Diaphragms**

- G03B 9/02 . Diaphragms
- G03B 9/04 . . Single movable plate with two or more apertures of graded size, e.g. sliding plate, pivoting plate
- G03B 9/06 . . Two or more co-operating pivoted blades e.g. iris type ([shutters functioning as diaphragms by limiting extent of opening movement G03B 9/08](#))
- G03B 9/07 . . with means for presetting the diaphragm
- G03B 9/08 . Shutters ([electro-, magneto-, or acousto-optical shutters G02F 1/00](#))
- G03B 9/10 . . Blade or disc rotating or pivoting about axis normal to its plane
- G03B 9/12 . . . Two relatively-adjustable aperture-defining members moving as a unit
- G03B 9/14 . . . Two separate members moving in opposite directions
- G03B 9/16 . . . Two separate members moving in the same direction
- G03B 9/18 . . . More than two members
- G03B 9/20 . . . . each moving in a single direction first to open and then to reclose
- G03B 9/22 . . . . each moving in one direction to open and then in opposite direction to close, e.g. iris type
- G03B 9/24 . . . Adjusting size of aperture formed by members when fully open so as to constitute a virtual diaphragm that is adjustable
- G03B 9/26 . . . incorporating cover blade or blades
- G03B 9/28 . . Roller blind or flexible plate
- G03B 9/30 . . . Single blind with multiple slots or other aperture



- G03B 9/32 . . . Double blind
- G03B 9/34 . . . . with adjustable slot; with mechanism controlling relative movement of blinds to form slot
- G03B 9/36 . . Sliding rigid plate
- G03B 9/38 . . . Single rigid plate with multiple slots or other apertures
- G03B 9/40 . . . Double plate
- G03B 9/42 . . . . with adjustable slot; with mechanism controlling relative movement of plates to form slot
- G03B 9/44 . . . Curved track and plate
- G03B 9/46 . . Flap shutters pivoting about axis in plane of flap
- G03B 9/48 . . . Double flap
- G03B 9/50 . . . Louvre type
- G03B 9/52 . . Barrel shutters
- G03B 9/54 . . Conical shutters; Rotating plate with axis of rotation inclined to optical axis of shutter
- G03B 9/58 . Means for varying duration of "open" period of shutter
- G03B 9/60 . . by varying speed of movement of obturating members
- G03B 9/62 . . by varying interval of time between end of opening movement and beginning of closing movement
- G03B 9/64 . Mechanism for delaying opening of shutter ([separate from shutter G03B 17/38](#))
- G03B 9/66 . Means for cocking shutter separate from means for releasing shutter
- G03B 9/68 . . Cocking effected by movement of film
- G03B 9/70 . with flash-synchronising contacts

**G03B 11/00** **Filters or other obturators specially adapted for photographic purposes**  
([filters per se G02B {G02B 5/20}](#))

- G03B 11/02 . Sky masks
- G03B 11/04 . Hoods or caps for eliminating unwanted light from lenses, viewfinders or focusing aids

**WARNING**

Groups [G03B 11/041](#) to [G03B 11/048](#) are not complete pending reclassification; see also [G03B 11/04](#)

- G03B 11/041 . . {[Lens caps as separate accessory \(accessories in general G03B 17/56\)](#)}
- G03B 11/043 . . {[Protective lens closures or lens caps built into cameras](#)}
- G03B 11/045 . . {[Lens hoods or shields](#)}
- G03B 11/046 . . {[for viewfinders or eyepieces](#)}
- G03B 11/048 . . {[Hoods or caps not provided for in groups G03B 11/041 to G03B 11/046](#)}
- G03B 11/06 . . Lens caps for exposure making



<b>G03B 13/00</b>	<b>Viewfinders; Focusing aids for cameras; Means for focusing for cameras; Autofocus systems for cameras</b> (hoods, caps <a href="#">G03B 11/04</a> ; reflex camera arrangements <a href="#">G03B 19/12</a> , <a href="#">G03B 19/14</a> ; rangefinders per se <a href="#">G01C 3/00</a> ; automatic focusing in general <a href="#">G02B 7/09</a> ; systems for automatic generation of focusing signals <a href="#">G02B 7/28</a> )
G03B 13/02	<ul style="list-style-type: none"> <li>Viewfinders</li> </ul>
G03B 13/04	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>of direct vision type, e.g. frame, sighting mark</li> </ul> </li> </ul>
G03B 13/06	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>with lenses with or without reflectors</li> </ul> </li> </ul>
G03B 13/08	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>with reflected image of frame</li> </ul> </li> </ul> </li> </ul>
G03B 13/10	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>adjusting viewfinders field</li> </ul> </li> </ul>
G03B 13/12	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>to compensate for change of camera lens or size of picture</li> </ul> </li> </ul> </li> </ul>
G03B 13/14	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>to compensate for parallax due to short range</li> </ul> </li> </ul> </li> </ul>
G03B 13/16	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>combined with focusing aids</li> </ul> </li> </ul>
G03B 13/18	<ul style="list-style-type: none"> <li>Focusing aids</li> </ul>
G03B 13/20	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Rangefinders coupled with focusing arrangements, e.g. adjustment of rangefinder automatically focusing camera</li> </ul> </li> </ul>
G03B 13/22	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>coupling providing for compensation upon change of camera lens</li> </ul> </li> </ul> </li> </ul>
G03B 13/24	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Focusing screens</li> </ul> </li> </ul>
G03B 13/26	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>with magnifiers for inspecting image formed on screen</li> </ul> </li> </ul> </li> </ul>
G03B 13/28	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Image-splitting devices</li> </ul> </li> </ul> </li> </ul>
G03B 13/30	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>indicating depth of field</li> </ul> </li> </ul>
G03B 13/32	<ul style="list-style-type: none"> <li>Means for focusing</li> </ul>
G03B 13/34	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Power focusing</li> </ul> </li> </ul>
G03B 13/36	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Autofocus systems</li> </ul> </li> </ul> </li> </ul>
<b>G03B 15/00</b>	<b>Special procedures for taking photographs; Apparatus therefor</b>
G03B 15/003	<ul style="list-style-type: none"> <li>{Apparatus for photographing CRT-screens}</li> </ul>
G03B 15/006	<ul style="list-style-type: none"> <li>{Apparatus mounted on flying objects}</li> </ul>
G03B 15/02	<ul style="list-style-type: none"> <li>Illuminating scene</li> </ul>
G03B 15/03	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Combinations of cameras with lighting apparatus; Flash units</li> </ul> </li> </ul>
G03B 15/035	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Combinations of cameras with incandescent lamps</li> </ul> </li> </ul> </li> </ul>
G03B 15/04	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>Combinations of photographic apparatus with non-electronic flash apparatus; Non-electronic flash units ({control of the photographic apparatus according to the flash apparatus characteristics <a href="#">G03B 7/16</a>; test apparatus for flash <a href="#">G03B 43/00</a>;} light sources using a charge of combustible material <a href="#">F21K 5/00</a>; ignition circuits <a href="#">H05B 43/02</a>)</li> </ul> </li> </ul> </li> </ul>
G03B 15/0405	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{Non-electronic flash apparatus incorporated in photographic apparatus}</li> </ul> </li> </ul> </li> </ul> </li> </ul>
G03B 15/041	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{Separable flash apparatus; Means for mounting the flash apparatus on the photographic apparatus}</li> </ul> </li> </ul> </li> </ul> </li> </ul>
G03B 15/0415	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{Mounting means comprising transversal slide and separate cable}</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>
G03B 15/0421	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>{Mounting means comprising transversal slide and incorporated contacts of the type "Hot shoe"}</li> </ul> </li> </ul> </li> </ul> </li> </ul> </li> </ul>

- G03B 15/0426 . . . . . {Mounting means comprising longitudinal slide and incorporated contacts (for multiple lamps)}
- G03B 15/0431 . . . . . {Rotatable mounting means}
- G03B 15/0436 . . . . . {Mounting means for sequential translation}
- G03B 15/0442 . . . . . {Constructional details of the flash apparatus; Arrangement of lamps, reflectors, or the like ([G03B 15/0484](#) takes precedence)}
- G03B 15/0447 . . . . . {Energy sources; Batteries; Capacitors}
- G03B 15/0452 . . . . . {Electrical ignition means connected to the shutter}
- G03B 15/0457 . . . . . {Ignition mechanisms for sequential ignition of flash lamps}
- G03B 15/0463 . . . . . {Piezo-electric ignition mechanisms}
- G03B 15/0468 . . . . . {Ignition mechanisms permitting choice of multiple ignition modes; Adaptors for different modes}
- G03B 15/0473 . . . . . {Remote controlled ignition mechanisms}
- G03B 15/0478 . . . . . {Combinations of photographic apparatus with percussion type flash ignition systems}
- G03B 15/0484 . . . . . {Constructional details of the flash apparatus}
- G03B 15/0489 . . . . . {Means for ignition by percussion}
- G03B 15/0494 . . . . . {Means for mounting percussion type flash apparatus}
- G03B 15/05 . . . Combinations of cameras with electronic flash apparatus; Electronic flash units ([discharge lamps per se H01J](#); [circuit arrangements H05B 41/00](#))
- G03B 15/06 . . . Special arrangements of screening, diffusing, or reflecting devices, e.g. in studio
- G03B 15/07 . . . Arrangements of lamps in studios
- G03B 15/08 . . . Trick photography
- G03B 15/10 . . . using back-projection, i.e. blending artificial background with real foreground
- G03B 15/12 . . . using mirrors
- G03B 15/14 . . . for taking photographs during medical operations
- G03B 15/16 . . . for photographing the track of moving objects ([high-speed photography G03B 39/00](#); [recording tracks of nuclear particles G01T 5/00](#))
- G03B 17/00** **Details of cameras or camera bodies; Accessories therefor (lens hoods or caps [G03B 11/04](#))**
- G03B 17/02 . . . Bodies
- G03B 17/04 . . . collapsible, foldable, or extensible, e.g. book-type ([bellows for instruments in general G12B](#))
- G03B 17/045 . . . . {Bellows}
- G03B 17/06 . . . with exposure meters or other indicators built into body but not connected to other camera members
- G03B 17/08 . . . Waterproof bodies or housings
- G03B 17/10 . . . Soundproof bodies
- G03B 17/12 . . . with means for supporting objectives, supplementary lenses, filters, masks, or turrets
- G03B 17/14 . . . interchangeably

- G03B 17/16
  - . for containing both motion-picture camera and still-picture camera
- G03B 17/17
  - . with reflectors arranged in beam forming the photographic image, e.g. for reducing dimensions of camera
- G03B 17/18
  - Signals indicating condition of a camera member or suitability of light ([indicating depth of field G03B 13/30](#))
- G03B 17/20
  - . visible in viewfinder
- G03B 17/22
  - with means for cutting-off film
- G03B 17/24
  - with means for separately producing marks on the film, e.g. title, time of exposure
- G03B 17/245
  - . {Optical means}
- G03B 17/26
  - Holders for containing light sensitive material and adapted to be inserted within the camera ([holders for X-ray films G03B 42/04](#))
- G03B 17/265
  - . {specially adapted for motion picture film e.g. cassettes ([cassettes for projection purposes G03B 21/323](#))}
- G03B 17/28
  - Locating light-sensitive material within camera
- G03B 17/30
  - . Locating spools or other rotatable holders of coiled film
- G03B 17/305
  - . . {for roll film cameras}
- G03B 17/32
  - . Locating plates or cut films
- G03B 17/34
  - . . Changing plates or cut films
- G03B 17/36
  - Counting number of exposures ([of film strips G03B 1/66](#); [counting mechanisms per se G06M](#))
- G03B 17/38
  - Releasing-devices separate from shutter ([integral with shutter G03B 9/08](#))
- G03B 17/40
  - . with delayed or timed action
- G03B 17/42
  - Interlocking between shutter operation and advance of film or change of plate or cut-film
- G03B 17/425
  - . {motor drive cameras}
- G03B 17/44
  - Means for exchanging focusing screen and light sensitive material
- G03B 17/46
  - Means for exposing single frames in motion-picture camera
- G03B 17/48
  - adapted for combination with other photographic or optical apparatus ([with microscopes, with telescopes G02B](#))
- G03B 17/50
  - . with both developing and finishing apparatus ([processing apparatus G03D](#))
- G03B 17/52
  - . . of the Land type
- G03B 17/53
  - . . for automatically delivering a finished picture after a signal causing exposure has been given, e.g. by pushing a button, by inserting a coin
- G03B 17/54
  - . with projector
- G03B 17/55
  - with provision for heating or cooling, e.g. in aircraft

- G03B 17/56
- Accessories (camera cases [A45C 11/38](#); {lens caps [G03B 11/041](#); stands or trestles as support for apparatus or articles placed thereon [F16M 11/00](#); means for attachment of apparatus allowing quick-release [F16M 11/041](#); means for supporting on, or holding steady relative to a person [F16M 13/04](#); tripods [F16M 11/24](#); tripods with telescopic legs [F16M 11/32](#); monopod or tripod having a central telescopic column [F16M 11/28](#); heads or undercarriages for supporting an object and allowing movement thereof [F16M 11/043](#) to [F16M 11/14](#) or [F16M 11/2007](#) to [F16M 11/24](#)})

**WARNING**

Groups [G03B 17/561](#) to [G03B 17/568](#) are not complete pending reclassification; see also [G03B 17/56](#)

- G03B 17/561
- • {Support related camera accessories}
- G03B 17/563
- • {Camera grips, handles (means in general for steadying hand-held apparatus [F16M 13/00](#))}
- G03B 17/565
- • {Optical accessories, e.g. converters for close-up photography, tele-convertors, wide-angle convertors}
- G03B 17/566
- • {Accessory clips, holders, shoes to attach accessories to camera (if integral part of camera body [G03B 17/02](#))}
- G03B 17/568
- • {Camera accessories not provided in groups [G03B 17/561](#) to [G03B 17/566](#)}
- G03B 17/58
- • Attachments for converting cameras into reflex cameras

**G03B 19/00****Cameras (details [G03B 17/00](#))**

- G03B 19/02
- Still-picture cameras
- G03B 19/023
- • {Multi-image cameras}
- G03B 19/026
- • • {Sequence cameras}
- G03B 19/04
- • Roll-film cameras
- G03B 19/06
- • • adapted to be loaded with more than one film, e.g. with exposure of one or the other at will ([G03B 19/07](#) takes precedence)
- G03B 19/07
- • • having more than one objective
- G03B 19/08
- • • with provision for alternative use with plates or cut-films
- G03B 19/10
- • Plate or cut-film cameras (with provision for alternative use with roll film [G03B 19/08](#))
- G03B 19/12
- • Reflex cameras with single objective and a movable reflector or a partly-transmitting mirror
- G03B 19/14
- • with paired lenses, one of which forms image on photographic material and the other forms a corresponding image on a focusing screen
- G03B 19/16
- • Pin-hole cameras
- G03B 19/18
- Motion-picture cameras (with non-intermittently running film [G03B 41/02](#))
- G03B 19/20
- • Reflex cameras
- G03B 19/22
- • Double cameras
- G03B 19/24
- • adapted to be loaded with more than one film, e.g. with exposure of one or the other at will
- G03B 19/26
- • with fade-in and fade-out effects

**G03B 21/00**

**Projectors or projection-type viewers; Accessories therefor** (devices for changing pictures [G03B 23/00](#); Zoetropes [G03B 25/00](#); photographic printing apparatus [G03B 27/00](#); arrangements for obtaining special effects on stages or in circuses or in arenas [F21W 2111/06](#); optical projection comparators [G01B 9/08](#); projection microscopes [G02B 21/36](#) {laser projectors using scanning devices [H04N 9/3129](#); interactive projectors, e.g. whiteboards, with input means to control the projection [G06F 3/00](#); optical distortion correction, e.g. keystone [G03B 21/14](#); projection devices comprising an electronic spatial light modulator and peculiar thereto [H04N 5/74](#) or [H04N 9/31](#)})

**WARNING**

Groups [G03B 21/001](#) to [G03B 21/008](#) are incomplete pending reclassification of documents from group [G03B 21/00](#).

Until reclassification is complete, groups [G03B 21/00](#) and [G03B 21/001](#) to [G03B 21/008](#) should be considered in order to perform a complete search.

- [G03B 21/001](#) . {Slide projectors}
- [G03B 21/003](#) . {Cine-projectors}
- [G03B 21/005](#) . {Projectors using an electronic spatial light modulator but not peculiar thereto}
- [G03B 21/006](#) . . {using LCD's}
- [G03B 21/008](#) . . {using micro-mirror devices}
- [G03B 21/02](#) . Multiple-film apparatus
- [G03B 21/04](#) . . Picture "juke-boxes"
- [G03B 21/06](#) . affording only episcopic projection
- [G03B 21/08](#) . affording epidiascopic projection
- [G03B 21/10](#) . Projectors with built-in or built-on screen ([projection screens in general G03B 21/56](#))
- [G03B 21/11](#) . . for microfilm reading
- [G03B 21/111](#) . . . {of roll films}
- [G03B 21/113](#) . . . . {Handling roll films}
- [G03B 21/115](#) . . . {of microfiches}
- [G03B 21/116](#) . . . . {Handling microfiches}
- [G03B 21/118](#) . . . {Reader-printers}
- [G03B 21/12](#) . adapted for projection of either still pictures or motion pictures ([prolonged exhibition of single frame G03B 21/38](#))
- [G03B 21/13](#) . Projectors for producing special effects at the edges of picture, e.g. blurring
- [G03B 21/132](#) . Overhead projectors, i.e. capable of projecting hand-writing or drawing during action ([epidiascopic projectors G03B 21/08](#))
- [G03B 21/134](#) . Projectors combined with typing apparatus or with printing apparatus

G03B 21/14

. Details

**WARNING**

Groups [G03B 21/142](#) to [G03B 21/147](#) are incomplete pending reclassification of documents from group [G03B 21/14](#).

Until reclassification is complete, groups [G03B 21/14](#) and [G03B 21/142](#) to [G03B 21/147](#) should be considered in order to perform a complete search.

G03B 21/142

. . {Adjusting of projection optics}

G03B 21/145

. . {Housing details, e.g. position adjustments thereof}

G03B 21/147

. . {Optical correction of image distortions, e.g. keystone}

G03B 21/16

. . Cooling; Preventing overheating

G03B 21/18

. . Fire preventing or extinguishing

G03B 21/20

. . Lamp houses (condensers per se [G02B](#))

G03B 21/2006

. . . {characterised by the light source}

G03B 21/2013

. . . . {Plural light sources}

G03B 21/202

. . . . {Incandescent light sources}

G03B 21/2026

. . . . {Gas discharge type light sources, e.g. arcs}

G03B 21/2033

. . . . {LED or laser light sources}

G03B 21/204

. . . . . {using secondary light emission, e.g. luminescence or fluorescence (using different colours [G03B 33/00](#); if related to video signals [H04N 9/3197](#))}

G03B 21/2046

. . . {Positional adjustment of light sources}

G03B 21/2053

. . . {Intensity control of illuminating light (controlled by video signal processing [H04N 5/74](#) or [H04N 9/31](#))}

G03B 21/206

. . . {Control of light source other than position or intensity}

G03B 21/2066

. . . {Reflectors in illumination beam (in projection beam [G03B 21/28](#))}

G03B 21/2073

. . . {Polarisers in the lamp house (peculiar to electronic spatial light modulators [H04N 9/3197](#))}

G03B 21/208

. . . {Homogenising, shaping of the illumination light}

G03B 21/2086

. . . {Security or safety means in lamp houses}

G03B 21/2093

. . . {Details of lamp houses not provided in groups [G03B 21/2006](#) to [G03B 21/2086](#)}

G03B 21/22

. . Soundproof bodies

G03B 21/26

. . Projecting separately subsidiary matter simultaneously with main image (light pointers [G02B 27/20](#))

G03B 21/28

. . Reflectors in projection beam {(in illumination beam [G03B 21/2066](#))}

G03B 21/30

. . adapted to collapse or fold, e.g. for portability

G03B 21/32

. . Details specially adapted for motion-picture projection (with film moving continuously through the gate [G03B 41/02](#))

G03B 21/321

. . . {Holders for films, e.g. reels, cassettes, spindles}

G03B 21/323

. . . . {Cassettes ([G03B 21/326](#), [G03B 21/328](#) take precedence; for containing light-sensitive material [G03B 17/265](#))}

G03B 21/325

. . . . . {Endless cassettes}

- G03B 21/326 . . . . {Means for fixing the film on the axis of a reel or spindle}
- G03B 21/328 . . . . {Means for fixing the film on the periphery of a reel}
- G03B 21/34 . . . Change-over arrangements
- G03B 21/36 . . . . Fades, dissolves, or wipes
- G03B 21/38 . . . Prolonged exhibition of single frame
- G03B 21/40 . . . Eliminating or reducing effect of flicker
- G03B 21/42 . . . Preventing damage to film due to abnormal operation of projector
- G03B 21/43 . . . Driving mechanisms
- G03B 21/44 . . . . Mechanisms transmitting motion to film-strip feed; Mechanical linking of shutter and intermittent feed ([film-strip per se G03B 1/00](#))
- G03B 21/46 . . . . . affording adjustment for framing
- G03B 21/48 . . . . . for altering frame speed; for regulating constancy of film speed
- G03B 21/50 . . . Control devices operated by the film strip during the run ([controlling or regulating speed G03B 21/48](#))
- G03B 21/52 . . . . by prepared film
- G03B 21/53 . . Means for automatic focusing, e.g. to compensate thermal effects ([automatic focusing in general G02B 7/09](#); [systems for automatic generation of focusing signals G02B 7/28](#))
- G03B 21/54 . Accessories
- G03B 21/56 . . Projection screens
- G03B 21/562 . . . {Screens moving during projection ([G03B 21/58 to G03B 21/62 take precedence](#))}
- G03B 21/565 . . . {Screens allowing free passage of sound ([G03B 21/58 to G03B 21/62 take precedence](#))}
- G03B 21/567 . . . {for colour projection ([G03B 21/58, G03B 21/60 take precedence](#))}
- G03B 21/58 . . . collapsible, e.g. foldable; of variable area
- G03B 21/585 . . . . Inflatable screens

**WARNING**

Group [G03B 21/585](#) is incomplete pending reclassification of documents from group [G03B 21/58](#).

Until reclassification is complete, groups [G03B 21/58](#) and [G03B 21/585](#) should be considered in order to perform a complete search.

- G03B 21/60 . . . characterised by the nature of the surface
- G03B 21/602 . . . . Lenticular screens ([G03B 21/625 takes precedence](#))
- G03B 21/604 . . . . Polarised screens
- G03B 21/606 . . . . for relief projection



G03B 21/608 . . . . Fluid screens

**WARNING**

Group [G03B 21/608](#) is incomplete pending reclassification of documents from group [G03B 21/60](#).

Until reclassification is complete, groups [G03B 21/60](#) and [G03B 21/608](#) should be considered in order to perform a complete search.

G03B 21/62 . . . . Translucent screens

G03B 21/625 . . . . Lenticular translucent screens

G03B 21/64 . . Means for mounting individual pictures to be projected, e.g. frame for transparency

**G03B 23/00** **Devices for changing pictures in viewing apparatus or projectors (film-strip handling [G03B 1/00](#); direct viewers per se [G02B](#))**

**NOTE**

For the purposes of this group the term "picture" denotes any flat representation, whether transparent or not, e.g. produced by photography, writing or printing

G03B 23/02 . in which a picture is removed from a stock and returned to the same stock or another one; Magazines therefor

G03B 23/04 . . with linear movement

G03B 23/042 . . . {whereby the picture is not returned to the same stock after projection}

G03B 23/044 . . . {whereby the picture is returned to the same stock}

G03B 23/046 . . . {Picture changing devices}

G03B 23/048 . . . {with horizontally sliding mechanism}

G03B 23/06 . . with rotary movement

G03B 23/08 . in which pictures are attached to a movable carrier

G03B 23/10 . . drum or disc carrier

G03B 23/105 . . . {disc carriers}

G03B 23/12 . . linear strip carrier

G03B 23/125 . . . {the pictures being attached to a chain or linked up to form a chain}

G03B 23/14 . Carriers operable to move pictures into, and out of, the projection or viewing position and carrying one or two pictures only in a removable manner ([G03B 23/18](#) takes precedence) {also other devices not provided with a stock, e.g. chutes}

G03B 23/18 . with fade-in and fade-out effects

**G03B 25/00** **Viewers, other than projection viewers, giving motion-picture effects by persistence of vision, e.g. zoetrope (high-speed photography [G03B 39/00](#))**

G03B 25/02 . with interposed lenticular or line screen

**G03B 27/00** **Photographic printing apparatus (film-strip handling [G03B 1/00](#))**

G03B 27/02 . Exposure apparatus for contact printing

- G03B 27/04 . . Copying apparatus without a relative movement between the original and the light source during exposure, e.g. printing frame, printing box
- G03B 27/06 . . . for automatic repeated copying of the same original
- G03B 27/08 . . . for automatic copying of several originals one after the other, e.g. for copying cinematograph film
- G03B 27/10 . . Copying apparatus with a relative movement between the original and the light source during exposure
- G03B 27/12 . . . for automatic repeated copying of the same original
- G03B 27/14 . . Details
- G03B 27/16 . . . Illumination arrangements, e.g. positioning of lamps, positioning of reflectors ([controlling the exposure G03B 27/72](#))
- G03B 27/18 . . . Maintaining or producing contact pressure between original and light-sensitive material
- G03B 27/20 . . . . by using a vacuum or fluid pressure
- G03B 27/22 . . . . by stretching over a curved surface
- G03B 27/24 . . . Separating the original from the print
- G03B 27/26 . . . Cooling
- G03B 27/28 . . . Edge-masking devices
- G03B 27/30 . . . adapted to be combined with processing apparatus ([processing apparatus per se G03D](#))
- G03B 27/303 . . . . {[Gas processing \(gas processing apparatus G03D 7/00\)](#)}
- G03B 27/306 . . . . {[Heat development \(heat development apparatus G03D 13/002\)](#)}
- G03B 27/32 . . Projection printing apparatus, e.g. enlarger, copying camera
- G03B 27/323 . . {[Copying cameras \(G03B 27/34 to G03B 27/70 take precedence\)](#)}
- G03B 27/326 . . {[Enlargers \(G03B 27/34 to G03B 27/70 take precedence\)](#)}
- G03B 27/34 . . Means for automatic focusing therefor ([systems for automatic generation of focusing signals G02B 7/28](#))
- G03B 27/36 . . . by mechanical connections, e.g. by cam, by linkage
- G03B 27/38 . . . . embodying screws with non-uniform pitch
- G03B 27/40 . . . . adapted for use with lenses of different focal length
- G03B 27/42 . . for automatic sequential copying of the same original ([G03B 27/34, G03B 27/53 take precedence](#))
- G03B 27/423 . . . {[in copying cameras](#)}
- G03B 27/426 . . . {[in enlargers](#)}
- G03B 27/44 . . for multiple copying of the same original at the same time ([G03B 27/34, G03B 27/53 take precedence](#))
- G03B 27/46 . . for automatic sequential copying of different originals, e.g. enlargers, roll film printers ([G03B 27/34, G03B 27/50, G03B 27/53 take precedence](#))
- G03B 27/462 . . . {[in enlargers, e.g. roll film printers](#)}
- G03B 27/465 . . . at different positions of the same strip, e.g. microfilm
- G03B 27/47 . . . at different positions of the same sheet, e.g. microfiche
- G03B 27/475 . . . copying cinematographic film ([G03B 27/48 takes precedence](#))

- G03B 27/48 . . . with original in the form of a film strip moving continuously and compensation for consequent image movement
- G03B 27/50 . . with slit or like diaphragm moving over original for progressive exposure ([G03B 27/34](#) takes precedence; {projection optics per se [G03B 27/525](#)})
- G03B 27/52 . . Details
- G03B 27/521 . . . {Arrangements for applying a supplementary information onto the sensitive material, e.g. coding (producing marks on the film in cameras [G03B 17/24](#))}
- G03B 27/522 . . . {Projection optics (for electro-photographic copiers in particular [G03G 15/04](#))}
- G03B 27/523 . . . . {for full time exposure}
- G03B 27/525 . . . . {for slit exposure}
- G03B 27/526 . . . . . {in which the projection optics move}
- G03B 27/527 . . . . . {as a whole in a translatory movement}
- G03B 27/528 . . . . . {in which the projection optics remain stationary}
- G03B 27/53 . . . Automatic registration or positioning of originals with respect to each other or the photosensitive layer (within photo-mechanical production of textured or patterned surfaces, e.g. of integrated circuits, [G03F 9/00](#))
- G03B 27/54 . . . Lamp housings; Illuminating means (controlling the exposure [G03B 27/72](#))
- G03B 27/542 . . . . {for copying cameras, reflex exposure lighting}
- G03B 27/545 . . . . {for enlargers}
- G03B 27/547 . . . . . {colour mixing heads}
- G03B 27/56 . . . Mounting enlarger head on column {Mounting reproduction camera on column}
- G03B 27/58 . . . Baseboards, masking frames, or other holders for the sensitive material ([G03B 27/53](#) takes precedence; {for electrophotographic copiers [G03G 15/65](#)})
- G03B 27/581 . . . . {in copying cameras ([G03B 27/60](#) takes precedence)}
- G03B 27/582 . . . . {Baseboards, easels}
- G03B 27/583 . . . . {Handling microfiche}
- G03B 27/585 . . . . {Handling cut photosensitive sheets}
- G03B 27/586 . . . . . {Supply stacks; Peeling off}
- G03B 27/587 . . . . {Handling photosensitive webs ([G03B 1/00](#) takes precedence)}
- G03B 27/588 . . . . . {Supply rolls; Cutting arrangements}
- G03B 27/60 . . . . using a vacuum or fluid pressure
- G03B 27/62 . . . Holders for the original ([G03B 27/53](#) takes precedence; {for electrophotographic copiers [G03G 15/60](#)})
- G03B 27/6207 . . . . {in copying cameras}
- G03B 27/6214 . . . . . {Copy boards}
- G03B 27/6221 . . . . . {Transparent copy platens}
- G03B 27/6228 . . . . . {Platen covers}
- G03B 27/6235 . . . . . {Reciprocating copy platens}

- G03B 27/6242 . . . . . {Masks; Overlays; Transparent carriers}
- G03B 27/625 . . . . . {Apparatus which relate to the handling of originals, e.g. presence detectors, inverters}
- G03B 27/6257 . . . . . {Arrangements for moving an original once or repeatedly to or through an exposure station}
- G03B 27/6264 . . . . . {Arrangements for moving several originals one after the other to or through an exposure station}
- G03B 27/6271 . . . . . {in enlargers}
- G03B 27/6278 . . . . . {Handling single frame negatives}
- G03B 27/6285 . . . . . {Handling strips ([G03B 1/00](#) takes precedence)}
- G03B 27/6292 . . . . . {Handling microfiche}
- G03B 27/64 . . . . . using a vacuum or fluid pressure
- G03B 27/66 . . . . . specially adapted for holding half-tone screens
- G03B 27/68 . . . . . Introducing or correcting distortion, e.g. in connection with oblique projection
- G03B 27/70 . . . . . Reflectors in printing beam
- G03B 27/72 . . . . . Controlling or varying light intensity, spectral composition, or exposure time in photographic printing apparatus ([exposure meters per se G01J](#); [control of light intensity in general G05D 25/00](#))
- G03B 27/722 . . . . . {when the reproduction scale is changed}
- G03B 27/725 . . . . . {Optical projection devices wherein the contrast is controlled electrically (e.g. cathode ray tube masking)}
- G03B 27/727 . . . . . {Optical projection devices wherein the contrast is controlled optically (e.g. uniform exposure, two colour exposure on variable contrast sensitive material)}
- G03B 27/73 . . . . . Controlling exposure by variation of spectral composition, e.g. multicolor printers
- G03B 27/735 . . . . . {in dependence upon automatic analysis of the original}
- G03B 27/74 . . . . . Positioning exposure meters in the apparatus
- G03B 27/80 . . . . . in dependence upon automatic analysis of the original ([G03B 27/73](#) takes precedence)

**G03B 29/00** Combinations of cameras, projectors, or photographic printing apparatus with non-photographic non-optical apparatus, e.g. clocks, weapons; Cameras having the shape of other objects (combinations with flash apparatus [G03B 15/03](#); combinations with instruments for medical examination [A61B 1/04](#), [A61B 3/14](#); combinations with surveying instruments [G01C](#); combinations with core or moderator structure of nuclear reactors [G21C 17/08](#); structural combinations with electric discharge tubes [H01J 5/16](#), [H01J 29/89](#), [H01J 37/22](#))

### Special techniques

- G03B 31/00** Associated working of cameras or projectors with sound recording or reproducing means ([record carriers characterised by the selection of the material and comprising cinematographic film and magnetic track G11B 5/633](#))
- G03B 31/02 . . . . . in which sound track is on a moving-picture film

- G03B 31/04 . in which sound track is not on, but is synchronised with, a moving-picture film
- G03B 31/06 . in which sound track is associated with successively-shown still pictures
- G03B 31/08 . with fade-in and fade-out effects

**G03B 33/00** **Colour photography, other than mere exposure or projection of a colour film**  
(printing apparatus [G03B 27/00](#); stereoscopic colour photography [G03B 35/00](#))

- G03B 33/02 . by two-colour separation records, e.g. red-aspect and white complete records; using Land effect
- G03B 33/04 . by four or more separation records
- G03B 33/06 . by additive-colour projection apparatus
- G03B 33/08 . Sequential recording or projection ([G03B 33/02](#), [G03B 33/04](#), [G03B 33/06](#) take precedence)
- G03B 33/10 . Simultaneous recording or projection ([G03B 33/02](#), [G03B 33/04](#) [G03B 33/06](#) take precedence)
- G03B 33/12 . . using beam-splitting or beam-combining systems, e.g. dichroic mirrors
- G03B 33/14 . . using lenticular screens ([integral with film G03C](#))
- G03B 33/16 . . using colour-pattern screens ([integral with film G03C](#))

**G03B 35/00** **Stereoscopic photography** (panoramic or widescreen systems [G03B 37/00](#); photogrammetry [G01C](#))

- G03B 35/02 . by sequential recording
- G03B 35/04 . . with movement of beam-selecting members in a system defining two or more view-points
- G03B 35/06 . . with axial movement of lens or gate between exposures
- G03B 35/08 . by simultaneous recording
- G03B 35/10 . . having single camera with stereoscopic-base-defining system
- G03B 35/12 . . involving recording of different view-point images in different colours on a colour film
- G03B 35/14 . Printing apparatus specially adapted for conversion between different types of record ([G03B 42/08](#) takes precedence)
- G03B 35/16 . by sequential viewing
- G03B 35/18 . by simultaneous viewing
- G03B 35/20 . . using two or more projectors
- G03B 35/22 . . using single projectors with stereoscopic-base-defining system
- G03B 35/24 . . using apertured or refractive resolving means on screens or between screen and eye
- G03B 35/26 . . using polarised or coloured light separating different viewpoint images

**G03B 37/00** **Panoramic or wide-screen photography; photographing extended surfaces, e.g. for surveying; Photographing internal surfaces, e.g. of pipe**

- G03B 37/005 . {[Photographing internal surfaces, e.g. of pipe](#), ([G03B 37/02](#) to [G03B 37/06](#) take precedence; [Instruments for performing medical examinations of cavities or tubes of the body by photographic inspection A61B 1/00](#))}
- G03B 37/02 . with scanning movement of lens or cameras
- G03B 37/04 . with cameras or projectors providing touching or overlapping fields of view

- G03B 37/06 . involving anamorphosis ([G03B 37/02](#), [G03B 37/04](#) take precedence)

**G03B 39/00****High-speed photography**

- G03B 39/005 . {using image converters or amplifiers}
- G03B 39/02 . using stationary plate or film ([G03B 39/06](#) takes precedence)
- G03B 39/04 . using moving plate or film ([G03B 39/06](#) takes precedence)
- G03B 39/06 . using light-guides for transferring image frame or elements thereof into different array, e.g. into a line

**G03B 41/00****Special techniques not covered by groups [G03B 31/00](#) to [G03B 39/00](#); Apparatus therefor**

- G03B 41/02 . using non-intermittently running film
- G03B 41/023 . . {combined with shutter}
- G03B 41/026 . . {combined with slit}
- G03B 41/04 . . with optical compensator
- G03B 41/06 . . . with rotating reflecting member
- G03B 41/08 . . . with rotating transmitting member
- G03B 41/10 . . . with oscillating reflecting member
- G03B 41/12 . . . with oscillating transmitting member
- G03B 41/14 . . Overcoming image movement by brief flashes of light

**G03B 42/00****Obtaining records using waves other than optical waves; Visualisation of such records by using optical means** (investigating or analysing materials using electromagnetic or sonic waves [G01N](#); using radar, sonar or analogous techniques [G01S](#); {holography [G03H](#)})

- G03B 42/02 . using X-rays (measurement of X-radiation [G01T](#); X-ray apparatus, circuits therefor [H05G 1/00](#))
- G03B 42/021 . . {Apparatus for direct X-ray cinematography (circuit arrangements for obtaining a series of X-ray photographs or for X-ray cinematography [H05G 1/60](#))}
- G03B 42/023 . . . {Apparatus for indirect X-ray cinematography i.e. by taking pictures on ordinary film from the images on the fluorescent screen (by transforming the picture information intermediately into electrical signals [G03B 27/25](#))}
- G03B 42/025 . . {Positioning or masking the X-ray film cartridge in the radiographic apparatus}
- G03B 42/026 . . {for obtaining three-dimensional pictures}
- G03B 42/028 . . {Industrial applications}
- G03B 42/04 . . Holders for X-ray films
- G03B 42/042 . . . {for dental applications (see also [A61B 6/14](#)); (individual packages for X-ray film [G03C 3/003](#))}
- G03B 42/045 . . . {apparatus for loading or unloading the holders}
- G03B 42/047 . . . {provided with marking means}
- G03B 42/06 . using ultrasonic, sonic or infrasonic waves (measurement of ultrasonic, sonic or infrasonic waves [G01H](#))

- G03B 42/08 . Visualising the records by optical means ([optical means using spatial filters G02B 27/46](#); [optical systems for visualising phase objects G02B 27/50](#))

**G03B 43/00 Testing correct operation of photographic apparatus or parts thereof**  
([measuring specific variables G01](#))

- G03B 43/02 . Testing shutters ([measuring time intervals G04F](#))
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**G03B 2205/00 Adjustment of optical system relative to image or object surface other than for focusing**

- G03B 2205/0007 . Movement of one or more optical elements for control of motion blur ([imaging systems in general using optical elements for stabilisation of the position of the image G02B 27/64](#))
- G03B 2205/0015 . . by displacing one or more optical elements normal to the optical axis
- G03B 2205/0023 . . by tilting or inclining one or more optical elements with respect to the optical axis
- G03B 2205/003 . . by a prism with variable angle or the like
- G03B 2205/0038 . . by displacing the image plane with respect to the optical axis ([in case of an electronic image sensor H04N 5/23248](#))
- G03B 2205/0046 . Movement of one or more optical elements for zooming ([for optical zoom lenses in general G02B 7/10](#))
- G03B 2205/0053 . Driving means for the movement of one or more optical element
- G03B 2205/0061 . . using piezoelectric actuators
- G03B 2205/0069 . . using electromagnetic actuators, e.g. voice coils
- G03B 2205/0076 . . using shape memory alloys
- G03B 2205/0084 . . using other types of actuators
- G03B 2205/0092 . Other types of adjustments, not provided for in groups [G03B 2205/0007](#) to [G03B 2205/0084](#) e.g. for collapsing

**G03B 2206/00 Systems for exchange of information between different pieces of apparatus, e.g. for exchanging trimming information, for photo finishing**

- G03B 2206/002 . using detachable memory means
- G03B 2206/004 . using markings on the photographic material, e.g. to indicate pseudo-panoramic exposure
- G03B 2206/006 . . of the bar-code type
- G03B 2206/008 . using holders for the photographic material

**G03B 2207/00 Control of exposure by setting shutters, diaphragms, or filters separately or conjointly**

- G03B 2207/005 . involving control of motion blur

**G03B 2213/00 Viewfinders; Focusing aids for cameras; Means for focusing for cameras; Autofocus systems for cameras**

- G03B 2213/02 . Viewfinders
- G03B 2213/025 . . Sightline detection

**G03B 2215/00 {Special procedures for taking photographs; Apparatus therefor}**



- G03B 2215/05 . Combinations of cameras with electronic flash units
- G03B 2215/0503 . . Built-in units
- G03B 2215/0507 . . . Pop-up mechanisms
- G03B 2215/051 . . . . with movable reflector, e.g. change of illumination angle or illumination direction
- G03B 2215/0514 . . Separate unit
- G03B 2215/0517 . . . Housing
- G03B 2215/0521 . . . . movable housing, e.g. bounce-light
- G03B 2215/0525 . . . . Reflector
- G03B 2215/0528 . . . . . movable reflector, e.g. change of illumination angle or illumination direction
- G03B 2215/0532 . . . . . Flashtube mounting
- G03B 2215/0535 . . . . . Built-in diffuser
- G03B 2215/0539 . . . . Ringflash
- G03B 2215/0542 . . . . watertight
- G03B 2215/0546 . . . . modular
- G03B 2215/055 . . . . Clamp-on device, e.g. filter
- G03B 2215/0553 . . . . with second integrated flash
- G03B 2215/0557 . . . Multiple units, e.g. slave-unit
- G03B 2215/056 . . . Connection with camera, e.g. adapter
- G03B 2215/0564 . . characterised by the type of light source
- G03B 2215/0567 . . . Solid-state light source, e.g. LED, laser
- G03B 2215/0571 . . . With second light source
- G03B 2215/0575 . . . Ring shaped lighting arrangements
- G03B 2215/0578 . . . Flashtube mounting
- G03B 2215/0582 . . Reflectors
- G03B 2215/0585 . . . Movable reflectors, e.g. change of illumination angle or direction
- G03B 2215/0589 . . Diffusers, filters or refraction means
- G03B 2215/0592 . . . installed in front of light emitter
- G03B 2215/0596 . . Combinations of cameras with electronic flash units not provided for in [G03B 2215/0564](#) to [G03B 2215/0592](#)
- G03B 2217/00** **Details of cameras or camera bodies; Accessories therefor**
- G03B 2217/002 . Details of arrangement of components in or on camera body
- G03B 2217/005 . Blur detection
- G03B 2217/007 . Details of energy supply or management
- G03B 2217/18 . Signals indicating condition of a camera member or suitability of light
- G03B 2217/185 . . providing indication that the picture may be blurred
- G03B 2217/24 . with means for separately producing marks on the film
- G03B 2217/241 . . with means for producing composite exposures, e.g. exposing an image and a border, producing identity cards

- G03B 2217/242 . . Details of the marking device
- G03B 2217/243 . . . Optical devices
- G03B 2217/244 . . . Magnetic devices
- G03B 2217/245 . . . Mechanical devices
- G03B 2217/246 . . Details of the markings
- G03B 2217/247 . . . Bar codes
- G03B 2217/248 . . with means for masking
- G03B 2217/26 . Holders for containing light-sensitive material and adapted to be inserted within the camera
- G03B 2217/261 . . Details of spools
- G03B 2217/263 . . Details of exposure status indicators; Double exposure prevention
- G03B 2217/265 . . Details of light-proofing
- G03B 2217/266 . . Thrust-type cartridges
- G03B 2217/268 . . Unloading the cartridge from the camera; Loading the cartridge into the camera
  
- G03B 2219/00** **Cameras**
- G03B 2219/02 . Still-picture cameras
- G03B 2219/04 . . Roll-film cameras
- G03B 2219/045 . . . adapted for unloading the film in the processing laboratory, e.g. disposable, reusable or recyclable cameras
  
- G03B 2227/00** **Photographic printing apparatus**
- G03B 2227/005 . Matrix print; Index print
- G03B 2227/32 . Projection printing apparatus, e.g. enlarging apparatus, copying camera
- G03B 2227/325 . . Microcapsule copiers