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| | | 288 | .With sample supply means |
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| 257 | ..With casing collar detection | 295 | ..With variable beam shifting field means |
| 258 | ..By interface of fluids | 296 | ..Plural diverse-type static path-bending fields |
| 259 | ..With placement of tracer in or about well | 297 | ...For causing complex ion path |
| 260 | ...Tracer being or including radioactive material | 298 | ..Magnetic field path-bending means |
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| 269.5 | ...Having thermal neutron detector | 309 | .Positive ion probe or microscope type |
| 269.6 | ...Having neutron source and gamma detector | 310 | .Electron probe type |
| 269.7 | ...With plural gamma detectors | 311 | .Electron microscope type |
| 269.8 | ...With detection in plural consecutive time intervals | 440.11 | .Analyte supports |
| 265 | ..Plural detectors | 441.11 | ..With air lock or evacuation means |
| 266 | ..With spacing or direction of detectors | 442.11 | ..With object moving or positioning means |
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| 281 | IONIC SEPARATION OR ANALYSIS | 315.3 | SOURCE WITH CHARGED PLATE-TYPE DETECTOR |
| 282 | .Methods | 316.1 | WITH INFRARED OR THERMAL PATTERN RECORDING |
| 283 | ..With collection of ions | 317.1 | .Thermal copying of documents |
| 284 | ...For material recovery | 318 | ..With image transfer device |
| 285 | .With plural, simultaneous ion generators | | |

- 319 ..With conveying means
- 324 **CORONA IRRADIATION**
- 325 .Charging of moving object
- 326 .Charging of objects
- 580 **SOURCE WITH RECORDING DETECTOR**
- 581 .Using a stimulable phosphor
- 582 ..With image recording
- 583 ...For specialized application
- 584 ..With image read-out
- 585 ...Including stimulation
- 586 ...Including emission detection
- 587With adjustment of conditions
- 588 ..With erasure
- 589 ..With conveyance
- 590 ...With a recirculation path
- 591 .Including a light beam read-out
- 328 **AUTOMATIC/SERIAL DETECTION OF SIMILAR SOURCES**
- 329 **RECORD PROJECTORS**
- 330 **INFRARED-TO-VISIBLE IMAGING**
- 331 .Including liquid crystal detector
- 332 .Including detector array
- 333 .Including image tube-type detector
- 334 .Including means for scanning field of view
- 335 **CLOUD OR BUBBLE CHAMBERS**
- 336.1 **INVISIBLE RADIANT ENERGY RESPONSIVE ELECTRIC SIGNALLING**
- 336.2 .Superconducting type
- 337 .With heating of luminophors
- 338.1 .Infrared responsive
- 338.2 ..Ferroelectric, ferromagnetic, photomagnetic types
- 338.3 ..Pyroelectric type
- 338.4 ..Semiconducting type
- 338.5 ..With means to analyze uncontained fluent material
- 339.01 ..With selection of plural discrete wavelengths or bands
- 339.02 ...Including detector array
- 339.03 ..Including temperature control means
- 339.04 ...Including temperature determining means
- 339.05 ..With additional noninfrared wavelengths
- 339.06 ...With radiation source
- 339.07Including spectrometer or spectrophotometer
- 339.08Including Fourier transform infrared spectrometry
- 339.09With calibration steps in measurement process
- 339.1Determining moisture content
- 339.11Measuring infrared radiation reflected from sample
- 339.12Using sample absorption for chemical composition analysis
- 339.13With gaseous sample
- 339.14 ...Detecting infrared emissive objects
- 339.15 ...Sensing flame or explosion
- 340 ..Methods
- 341.1 ...With irradiation or heating of object or material
- 341.2Including probe
- 341.3Including polarizing means
- 341.4With semiconductor sample
- 341.5With calibration
- 341.6Heating of object or material
- 341.7With multiple sources
- 341.8Measuring infrared radiation reflected from sample
- 342 ...Locating infrared emissive objects
- 343 ..With means to transmission-test contained fluent material
- 344 ...Plural series signalling means
- 345 ...Plural beam/detector pairs
- 346Plural temperature sensitive signalling means
- 347 ..With movable beam deflector or focussing means
- 348 ...Controlled by signalling means
- 349 ..Plural signalling means
- 350 ...With periodic beam varying means
- 351 ..With periodic beam varying means
- 352 ..With temperature modifying means
- 353 ..With beam deflector or focussing means
- 354.1 .Signalling means controls incident radiation
- 356.1 .Flow metering
- 356.2 ..Using radioactive tracer
- 357.1 .Fluent material level signalling
- 358.1 .With means to inspect passive solid objects
- 359.1 ..Rectilinearly moving object
- 360.1 ..With relative movement means
- 361 R .With or including a luminophor
- 362 ..Methods

- 363.01 ..With radiant energy source
- 363.02 ...Body scanner or camera
- 363.03With positron source
- 363.04Emission tomography
- 363.05With detector support
- 363.06Using coded aperture
- 363.07With distortion correction
- 363.08With detector support
- 363.09 ...With calibration
- 363.1With a collimator
- 364 ...With fluent source handling or collecting means
- 365 ...Ultraviolet light source
- 366 ..Plural electric signalling means
- 367 ..Plural or composite luminophor
- 368 ..With optics
- 369 ..With output system
- 361 C ..Chemiluminescent detection
- 370.01 ..Semiconductor system
- 370.02 ..Alpha particle detection system
- 370.03 ..Fission fragment/fissionable isotope detection system
- 370.04 ..Self-powered system
- 370.05 ..Neutron detection system
- 370.06 ..Discrimination-type system
- 370.07 ..Dose or dose rate measurement
- 370.08 ..Imaging system
- 370.09 ...X-ray or gamma-ray system
- 370.1 ..Position sensitive detection system
- 370.11 ..Scintillation system
- 370.12 ..Of material other than germanium, diamond, or silicon
- 370.13 ...Containing cadmium telluride
- 370.14 ..Particular detection structure (e.g., MOS, PIN)
- 370.15 ..Temperature control or compensation system
- 371 ..Methods
- 372 ..Ultraviolet light responsive means
- 373 ..With means to transmission-test contained fluent material
- 374 ..Including a radiant energy responsive gas discharge device
- 375 ..Methods
- 376 ..With electroscopic indicators
- 377 ...With charge generator
- 378 ...With charge storage means
- 379 ..With means to supply the gas
- 380 ...Radioactive gas, or with gas-borne radioactive material
- 381 ...With radioactive source
- 382 ..With means to ionize the gas
- 383 ...Emissive fluent type, or with transmissive fluent material
- 384 ...Radioactive
- 385.1 ..Plural chambers or three or more electrodes
- 385.2 ...Spark chambers
- 386 ..With a periodic electrode bias varying means
- 387 ..With periodic electrode bias supply
- 388 ..With indicator
- 389 ..Including ionization means
- 390.01 ..Neutron responsive means
- 390.02 ..Radiographic analysis
- 390.03 ..With dose measurement
- 390.04 ..Composition analysis
- 390.05 ...For moisture content
- 390.06 ..Density/thickness/consistency analysis
- 390.07 ..Spectrum analysis
- 390.08 ...Using time-of-flight spectrometers
- 390.09 ...Using diffractometers
- 390.1 ..Including beam control
- 390.11 ..Including a scintillator
- 390.12 ..Position-sensitive
- 391 ..Methods
- 392 ..With indicating or recording means
- 393 ..With radiant energy source
- 394 ..Plural signalling means
- 395 ..Methods
- 200 **PHOTOCELLS; CIRCUITS AND APPARATUS**
- 201.1 ..Photocell controls its own optical systems
- 201.2 ..Automatic focus control
- 201.3 ...Of a microscope
- 201.4 ...Active autofocus
- 201.5 ...With optical storage medium; e.g., optical disc, etc.
- 201.6 ...Based on triangulation
- 201.7 ...Based on contrast
- 201.8 ...Based on image shift
- 201.9 ..Light beam wavefront phase adaptation
- 203.1 ..Following a target (e.g., a star or instrument pointer or other object) other than a pattern
- 203.2 ...Target illuminated by artificial light source

- 203.3 ...Self-luminous target
- 203.4Sun
- 203.5Cathode-ray tube scanning
- 203.6Airborne target, or
spaceborne target other than
the sun (e.g., star or
missile)
- 203.7With moving reticle in
optical path
- 202 ..Following a pattern (e.g., line
or edge)
- 548 ..Controlling web, strand, strip,
or sheet
- 549 ..Cathode-ray tube
- 204 ..Adjusting optical system to
balance brightness in plural
paths
- 205 ..Controlling light source
intensity
- 550 ..Interference pattern analysis
(e.g., spatial filtering or
holography)
- 551 ..Signal isolator
- 552 ..Solid state light source
- 553 ..Array or matrix
- 554 ..Flame light source
- 559.01 ..With circuit for evaluating a
web, strand, strip, or sheet
- 559.02 ..Evaluation of photographic film
- 559.03 ..Sequential detector arrangement
- 559.04 ..Evaluation by regions, zones,
or pixels
- 559.05 ...With imaging
- 559.06 ...With scanning
- 559.07 ..With imaging
- 559.08 ..With camera
- 559.09 ..With polarization
- 559.1 ..With calibration
- 559.11 ..Detection of both reflected and
transmitted light
- 559.12 ..Beam interruption or shadow
- 559.13 ...With laser source
- 559.14 ...With rotation of material
- 559.15 ...With plural detectors
- 559.16 ..Detection of diffuse light
- 559.17 ...With diffusion optics
- 559.18 ...With discrimination of
discrete light diffusing
region
- 559.19 ..Measuring dimensions
- 559.2 ..With comparison to reference
or standard
- 559.21 ...Volume
- 559.22 ...Profile
- 559.23With triangulation
- 559.24 ...Transversal measurement (e.g.,
width, diameter, cross-
sectional area)
- 559.25Lumber
- 559.26 ...Longitudinal measurement
(e.g., length or spacing)
- 559.27 ...Thickness
- 559.28With translucent material
- 559.29 ..Measuring position
- 559.3 ...With alignment detection
- 559.31 ...With triangulation
- 559.32 ...Measuring rate of motion or
flow (change of position)
- 559.33 ...With robotics
- 559.34 ...Lead or wire bond inspection
- 559.35 ...Centroid
- 559.36 ...Edge
- 559.37 ...Angular orientation (e.g.,
skew)
- 559.38 ...Determining range from
detector
- 559.39 ..With comparison to reference or
standard
- 559.4 ..With indication of presence of
material or feature
- 559.41 ...With foreign particle
discrimination circuitry
- 559.42 ...Discontinuity detection (e.g.,
hole, crack)
- 559.43 ...Break detection
- 559.44 ...Identifying marking, pattern,
or indicia
- 559.45 ...With defect discrimination
circuitry
- 559.46With camera or plural
detectors
- 559.47With counting means
- 559.48With transversal scan
- 559.49With moving reflector
- 206 ..Photocell controlled circuit
- 206.1 ..Having means to generate
positional information in at
least one plane of a target
moving relative to one or more
photodetectors
- 206.2 ...Detection of positional
information in two or more
planes (e.g., azimuth and
elevation; hour angle and
declination)
- 206.3With moving reticle in
optical path
- 555 ..Including coded record
- 556 ...Document verification or graph
reader

- 557 ...With means to position, direct, or detect record
- 558 ..Stereoplotters
- 564 ..With circuit for evaluating a fluent material
- 565 ...With comparison
- 207 ..Electron multiplier
- 208.1 ..Plural photosensitive image detecting element arrays
- 208.2 ..Plural photosensitive nonimage detecting elements
- 208.3 ...With electronic scanning
- 208.4 ...Used to switch an electrical circuit or device on or off
- 208.5 ...With photodetector output ratioing other than by bridge or push-pull circuits
- 208.6 ...With specific relative positional geometry of photosensitive elements (e.g., an annular photosensitive element surrounding a coaxially mounted photosensitive element)
- 210 ..Bridge and push-pull circuits
- 214 R ..Special photocell or electron tube circuits
- 214 P ...Photographic control
- 214 D ...Light dimmers
- 214 A ...Amplifier type
- 214 LALight amplifier type
- 214 LSSwitching type
- 214 VTVacuum tube type
- 214 PR ...Photosensitive rheostat type
- 214 SG ...Self-generating type
- 214.1 ...Special photocell
- 214 AG ...Automatic gain control
- 214 AL ...Ambient light responsive
- 214 B ...Ambient light desensitizing means
- 214 C ...Compensation
- 214 DC ...Digital circuitry
- 214 L ...Logarithmic/linear signal
- 214 RC ...Rate of change
- 214 SF ...Slave flash
- 214 SW ...Electronic switch
- 215 .Combined with diverse-type device
- 216 .Optical or pre-photocell system
- 227.11 ..Light conductor
- 227.12 ...Optical delay line
- 227.13 ...Light pen
- 227.14 ...Condition responsive light guide (e.g., light guide is physically affected by parameter sensed which results in light conveyed to the photocell)
- 227.15 ...With detection of macroscopic break in fiber
- 227.16 ...With detection of fiber microbend caused by parameter affecting fiber
- 227.17 ...Causing polarization change in fiber
- 227.18 ...Causing light spectral frequency/wavelength change
- 227.19 ...With coherent interferometric light
- 227.2 ...With imaging
- 227.21 ...With light chopping or modulation
- 227.22 ...Keyboard or other manual switch controlled
- 227.23 ...With spectral frequency/wavelength discrimination
- 227.24 ...With coupling enhancement means
- 227.25 ...Fluid coupling
- 227.26 ...With scanning
- 227.27 ...With coherent interferometric light
- 227.28 ...With specific configuration of light conductor components with respect to each other
- 227.29 ...With specific illumination or viewing orientation of light conductor relative to viewed object (e.g., light normal to, and detector at 45 degree angle to, viewed object)
- 227.3 ...With variable orientation of light conductor relative to viewed object (e.g., goniometer)
- 227.31 ...Side or edge illuminated light conductor or collector
- 227.32 ...End illuminated light conductor with noncircular geometric cross section
- 566 ..Including coded record
- 568 ...Digital information
- 569Card type
- 570Tape, drum, or disc types
- 573 ..Fluent material in optical path
- 574 ...Scattered or reflected light
- 575 ...Plural paths

| | | | |
|--------|---|--------|---|
| 576 | ...Sample holder or supply | 239 | .Housings (in addition to cell casing) |
| 577 | ...Volume or level | | |
| 221 | ..Controlled by article, person, or animal | 396 R | WITH CHARGED PARTICLE BEAM DEFLECTION OR FOCUSING |
| 222.1 | ...Inanimate article | 397 | .With detector |
| 222.2 |Particle detection | 398 | .With target means |
| 223 R |Conveyor or chute | 399 | ..Secondary emissive type |
| 223 B |Bottles | 400 | ..With means to convey or guide the target |
| 224 |Article and light ray relatively moved during sensing | 396 ML | .Magnetic lens |
| 225 | ..Polarizing | 423 R | ION GENERATION |
| 226 | ..Color (e.g., filter or spectroscope) | 424 | .Methods |
| 228 | ..Integrating sphere | 425 | .With sample vaporizing means |
| 229 | ..Light valve (e.g., iris diaphragm) | 426 | .Arc type |
| 231.1 | ...Actuated by dynamic external physical quantity | 427 | .Electron bombardment type |
| 231.11 |Actuated by gauge element deflection | 423 P | .Photoionization type |
| 231.12 |Gyroscopes | 423 F | .Field ionization type |
| 231.13 |Shaft angle transducers | 428 | FLUENT MATERIAL CONTAINMENT, SUPPORT OR TRANSFER MEANS |
| 231.14 |Incremental shaft readers; i.e., with means to generate increments of angular shaft rotation | 429 | .With temperature control |
| 231.15 |With plural gear driven discs | 430 | .With valve or pump actuator |
| 231.16 |Using phase difference of output signals from plural photodetectors | 431 | .With cleaning means |
| 231.17 |With means to indicate a complete shaft rotation | 432 R | .With irradiating source or radiating fluent material |
| 231.18 |Position indicating shaft encoders with means to generate a unique signal for each specific angular shaft position | 433 | ..Including a movable surface transfer means |
| 231.19 |Pressure-responsive light valves | 434 | ..Including a gravity-type transfer means |
| 230 | ..Reflection type(e.g., mirror galvanometer) | 435 | ..Including a flowthrough transfer means |
| 232 | ...Light chopper type | 436 | ...Flow-enclosed radiation source |
| 233 |Rotary | 437 | ...Tortuous path type |
| 578.1 | ..Plural light sources or optical paths | 438 | ...With a flow-modifying surface |
| 234 | ..Means for moving optical system | 432 PD | ..Parent-daughter isotope separators |
| 235 | ...Repetitious path | 453.11 | SUPPORTED FOR NONSIGNALLING OBJECTS OF IRRADIATION (E.G., WITH CONVEYOR MEANS) |
| 236 |Rotary motion | 454.11 | .With source support |
| 237 R | ..Hoods, grating, baffles, diaphragms, masks | 455.11 | ..Source and object encasement (e.g., sterilizers) |
| 237 G | ...Gratings (moire fringes) | 458.1 | LUMINOPHOR IRRADIATION |
| 238 | .Temperature control of photocell | 459.1 | .Methods |
| | | 461.1 | .With ultraviolet source |
| | | 461.2 | ..Biological cell identification |
| | | 462.1 | .Self-luminous article |
| | | 463.1 | ..Dials, pointers, gauges, and bands |
| | | 464.1 | ..Pendants |
| | | 465.1 | ..Manual operators or luminous attachments therefor |
| | | 466.1 | ..Covers, keys, or luminous attachments therefor |

467.1 ..Reticles, gun sights or with optical element

472.1 **INVISIBLE RADIATION RESPONSIVE NONELECTRIC SIGNALLING**

473.1 ..Methods

474.1 ..Optical change type

475.2 ..Photographic type

482.1 ..With radiation filter, modifier, or shield (e.g., dosimeter badges)

483.1 ..Luminescent device

484.2 ..Requiring an additional energy source to cause luminescence

484.3 ...With thermally-stimulated phosphor

484.4 ...With optically-stimulated phosphor

484.5Dosimeter

485.1 ..With light excluding casing having an aperture

486.1 ..With plural luminescent material or plural luminescent containing layers or areas

487.1 ..With optical member of material to directly modify luminous energy

488.1 ...Plural planar layer type

489 **ION COLLECTORS**

491.1 **MEANS TO ALIGN OR POSITION AN OBJECT RELATIVE TO A SOURCE OR DETECTOR**

492.1 **IRRADIATION OF OBJECTS OR MATERIAL**

492.2 ..Irradiation of semiconductor devices

492.21 ..Ion bombardment

492.22 ..Pattern control

492.23 ..Variable beam

492.24 ..Photocathode projection

492.3 ..Ion or electron beam irradiation

493.1 **RADIANT ENERGY GENERATION AND SOURCES**

494.1 ..Plural radiation sources

495.1 ..Including an infrared source

496.1 ..With container for radioactive source and radiation directing or selectable shielding

497.1 ..With means to move source between shielded and unshielded position

498.1 ..With pivoted or rotatable radiation shield

503.1 ..With radiation modifying member

504 R ..Ultraviolet or infrared source

504 H ...Hand-held

505.1 **RADIATION CONTROLLING MEANS**

506.1 ..Shielded receptacles for radioactive sources

507.1 ..Having plural storage compartments or plural nested receptacles

515.1 ..Shields

516.1 ..Garments

517.1 ..Construction elements or building parts

518.1 ..With neutron absorption material

519.1 ..Flexible

522.1 **SOURCE SUPPORTS**

526 **MISCELLANEOUS**

CROSS-REFERENCE ART COLLECTIONS

900 **OPTICAL LIQUID LEVEL SENSORS**

901 ..With gap between light guide elements (includes open light path preset)

902 ..With closed light path preset

903 ...With prism contacting liquid

904 ..With single light guide element to guide light in a continuous path

905 ..With longitudinal irregularity

906 ...With large scale longitudinal bend

907 ...With portions of light guide coating or cladding removed

908 ...With waveguide twisted about its longitudinal axis

909 **METHODS AND APPARATUS ANCILLARY TO STIMULABLE PHOSPHOR SYSTEMS**

910 **FOOD SAMPLE ANALYSIS USING INVISIBLE RADIANT ENERGY SOURCE**

FOREIGN ART COLLECTIONSFOR 000 **CLASS-RELATED FOREIGN DOCUMENTS****DIGESTS**

DIG 1 **PASSIVE INTRUSION DETECTORS**

DIG 2 **RADON DETECTION**

