

CLASS 353, OPTICS: IMAGE PROJECTORS**SECTION I - CLASS DEFINITION**

This class provides for projectors not elsewhere classified. This class includes the projectors for particular types of objects to be projected; such as maps and aerial photographs, targets, transparent plates, information data, microscopic objects, scales and indicators, and stencils or perforated plates. Various other species and types of projectors are also included here such as kaleidoscopic, heliostats, stereoscopic and relief, pointers, gun type, moving images on screens, episcopes and cabinets including screens.

Various plural and composite types of projectors are included such as projectors involving plural projected images including multicolor, projectors for images combined with real objects, projectors with manual delineation, and plural projection with a single light source.

Projectors selective at the operators choice are also included as where the selection is between a slide and a film strip, between a cabinet and a distant screen, and between opaque and transparency projection i.e., epidiascope.

Certain combinations and perfecting features are included such as with vehicles, with sound accompaniment, with editing or auxiliary viewing, additional illumination of or near screen, temperature control, distortion compensation, housings, structurally related projectors and screens, and lamp control. Included also are improvements in particular elements of or their relation to the projector, when the elements are claimed in combination with other projector structure. These improvements may be in the projector filters, prisms, shutters, gates, reflectors, lens supports, condensers, and slide changers.

Certain subcombinations of projectors are included here, usually where they are peculiar to projectors, such as slide changers, housings and picture carriers.

Methods of projection are included here. This is usually the method of operating projection apparatus in a particular manner.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**PROJECTORS CLASSIFIED ELSEWHERE**

Class 434, Education and Demonstration, subclasses 180, 314+, and 324+, provides for projectors with some limitation for use with teaching. Class 178, Telegraphy, especially subclass 23 for telegraphic printing which may involve projection. These may also be considered as projectors combined with telegraphy apparatus. Class 250, Radiant Energy, subclass 329 has the projection of invisible radiant energy images onto a fluorescent or phosphorescent screen, subclasses 458.1+ has the irradiation of fluorescent and phosphorescent devices and subclasses 483.1+ for fluorescent and phosphorescent devices, per se. Class 359, Optical: Systems and Elements, subclasses 369 and 400 provides for compound lens systems with viewing screens. Class 351, Optics: Eye Examining, Vision Testing and Correcting, subclasses 210+ and 237+, for eye examining instruments with chart or target projection. Class 352, Optics: Motion Pictures, for motion picture projectors. Class 396, Photography, subclass 430 for a camera convertible to developed image projectors or viewer. Class 355, Photocopying, subclasses 18+ for copying cameras or projecting printers involving projection on a photographic film for recording the projected image; the copying background in a patent is sufficient for classification in Class 355 as opposed to this Class 353. Class 356, Optics: Measuring and Testing, subclasses 391+ provides for configuration comparison involving projection on a viewing screen. Class 348, Television, subclasses 744+ for television projection devices.

PROJECTORS COMBINED WITH OTHER STRUCTURE AND CLASSIFIED ELSEWHERE

Class 33, Geometrical Instruments, subclass 1, provides for image projectors combined with measuring means; subclasses 20.1+ for image projectors in combination with a claimed scribing or tracing means; and subclasses 501+, for patents including an image projector and a feeler which contacts an article to be tested. Class 434, Education and Demonstration, subclasses 180, 314+, and 324+ provides for an image projector having mechanism for uncovering an answer or in combination with an educational device which includes means by which a student controls or operates the device and subclass 286 for planetarium projectors. Class 52, Static Structures (e.g., Buildings), provides for a projector in combination with a stadium or auditorium. Class 368, Horology: Time Measuring Systems or Devices, subclasses 41+, 82+, and 239+, for clocks including projection of the hands or dial. Class 116, Signals and Indicators, subclasses 246+ for radio tuning indicators with projectors, Class 177, Weighing Scales, subclass 178 for projection scales. Class 178, Telegraphy, especially subclasses 23+

for telegraphic printing which may include projection. Class 352, Optics: Motion Pictures, subclass 131 provides for a projector in combination with a motion picture projector and Class 355, Photocopying, subclasses 18+ for copying cameras which contain projection systems. Class 348, Television, subclasses 744+ for television projection devices.

PROJECTOR SUBCOMBINATION CLASSIFIED ELSEWHERE

Class 206, Special Receptacle or Package, subclass 456 provides for slide magazine, per se, i.e., with no limitation for operation in a projector; Class 226, Advancing Material of Indeterminate Length, especially subclasses 52+ for film advancing mechanisms; Class 242, Winding, Tensioning, or Guiding, subclasses 324+ for a device for unwinding and rewinding a machine convertible information bearing carrier which may include image film, and subclasses 520+ for a convolute winding process or machine in general use; Class 362, Illumination, subclasses 257+, for projection lamps which may be used in projectors; Class 248, Supports, subclasses 637+ for projection machine supports; Class 359, Optical: Systems and Elements, subclasses 443+ for projection screens; subclasses 642+ for lenses; subclasses 838+ for reflectors; and subclasses 885+ for optical filters.

FACSIMILE, TELEVISION, AND TELEGRAPHIC PRINTING

Exhibitors involving conversion from electrical to optical form are in Class 348, subclasses 744+ when a television receiver is claimed in combination with projection structure (such as lens, filter and reflector combinations) to transmit the image from a cathode-ray tube to a viewing surface. Class 359 provides for lenses, filters and reflectors set forth as being for use with a television or in a television cabinet. This Class 353 provides for combinations or subcombinations of projectors which employ a concentrated source of light where the source of light is not a cathode-ray tube. Since the cathode-ray tube has the image thereon and no concentrated light is projected through or reflected from that image, the combination of a cathode-ray tube and a lens, for example, is not within the Class 353 definition.

Class 178, subclasses 23+ provides for detailed stock tickers or other Class 178 printers in combination with either a detailed or a broadly claimed projector. This Class 353, in subclasses 46+ provides for a detailed projector in combination with a nominal stock ticker. Class 178, subclass 42 provides for the combination of a nom-

inal printer, a nominal projector, and a detailed tape-feeding mechanism, since Class 226 does not provide for this combination. Class 226 does provide for tape-advancing means in combination with a projector when only one optical element is claimed, or in combination with a nominal printer; but does not provide for a combination including a projector and a printer.

PROJECTION LIGHTS

Class 362 in subclasses 257+ provides for light projectors or subcombinations of image projectors which merely claim elements such as lights, condensing lenses, filters, screens for filtering, masks, or reflectors. However, this Class 353 provides for image projectors which include elements such as a slide guideways, film-gates, objective lenses, viewing screens, or means to dissolve images.

A light or shadow spot projector for pointing out part of an image on a viewing screen is classified in this Class 353, subclass 42 even though other light projectors are in Class 362.

Class 362 includes patents where the mere image of the light source or its filament is obtained.

OPTICAL ELEMENTS (E.G., LENSES AND SCREENS)

Class 359 includes projection lens systems, lens mounts, lens supports, and optical elements where no other image projector structure such as a slide changer shutter, film gate, viewing screen or light source is recited in the claims.

Class 359, subclasses 443+ also provides for projection screens, per se, or in combination with lenses. However, when a projection screen is in combination with an image projector having a concentrated source of light, classification is in Class 353.

MOTION PICTURE PROJECTORS

Motion picture image projectors which create an illusion of motion by employing the persistence of vision of a person are provided for in Class 352. If there is a recitation in the claims of "a motion picture projector," "animation projector," or equivalent terminology; or if structure definitive of motion picture mechanism is made, classification is in Class 352. However, the mere motion picture background is not sufficient to remove subject matter from Class 353 to Class 352. Patents which set forth the combination of a still and a motion

picture projector are classified in Class 352, subclass 131; and those patents which claim devices convertible from still to motion or from motion to still picture projector are classified in Class 352, subclass 131; and those patents which claim devices convertible from still to motion or from motion to still picture projectors are in Class 352, subclasses 136 and 147.

Class 352, subclasses 1+ provides for motion picture projectors accompanied by sound where the "motion" is either claimed or disclosed.

SLIDE EXHIBITORS AND SLIDES

Class 40, subclasses 701+ provides for slides and slide mounts where no particular image or optical relationships are recited. However, this Class 353, subclass 120 includes slides where there is a relationship of the images thereon, or where the slide has both a visual and a sound record.

Slide changers disclosed as being useful with a mere viewer are in Class 40, while slide changers disclosed for use with image projectors or for either viewers or image projectors are in this Class 353.

SECTION III - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

- 33, Geometrical Instruments, subclass 1, for image projectors combined with measuring means; subclasses 20.1+ for image projectors in combination with a claimed scribing or tracing means; and subclasses 501+, for patents including an image projector and a feeler which contacts an article to be tested.
- 52, Static Structures (e.g., Buildings), for a projector in combination with a stadium or auditorium.
- 177, Weighing Scales, subclass 178, for the combination of a projector with a significantly claimed weighing scale.
- 178, Telegraphy, subclass 42 for a projector, film feeding means and a stock ticker in combination.
- 206, Special Receptacle or Package, subclass 456 for a photo slide magazine, per se, where no relationship or means for connecting to a projector is claimed.
- 226, Advancing Material of Indeterminate Length, especially subclasses 52+ for film advancing means in a projector where no more than one

- optical element is claimed and where no detailed optics is recited.
- 242, Winding, Tensioning, or Guiding, subclasses 324+ for a device for unwinding and rewinding a machine convertible information bearing carrier which includes image film, and subclasses 520+ for a convolute winding process or machine in general use.
- 248, Supports, subclasses 637+, for projector supports where no optical limitations are set forth.
- 250, Radiant Energy, subclasses 330+ for methods and apparatus to convert infrared radiation into a visible image, subclass 361 for invisible radiant-energy-responsive electric signalling devices which include a luminescent device responsive to the radiant energy, subclasses 458.1+ for methods and apparatus for irradiating fluorescent and phosphorescent devices and subclasses 483.1+ for fluorescent and phosphorescent devices, per se.
- 348, Television, subclasses 744+ for a television means in combination with projection means.
- 351, Optics: Eye Examining, Vision Testing and Correcting, subclasses 210+ and 237+ for chart or target projection devices employed for examining and testing eyes.
- 352, Optics: Motion Pictures, for motion picture projectors.
- 355, Photocopying, subclasses 18+ for copying cameras and projection printers.
- 356, Optics: Measuring and Testing, subclasses 391+ for measuring and testing patents which involve image projection where an article is compared to a scale or where an article is compared to a standard by superimposing the two or by viewing the two concurrently when they or their images are immediately adjacent each other.
- 368, Horology: Time Measuring Systems or Devices, subclasses 41+, 82+, and 239+ for a projector in combination with a clock where more than the mere hands and face of the clock is claimed.
- 369, Dynamic Information Storage or Retrieval, subclasses 100+ for means to optically record or reproduce sound.
- 396, Photography, subclass 430 for a camera convertible to developed image projectors or viewer.
- 399, Electrophotography, subclasses 9+ for diagnostics, subclasses 38+ for controls, subclasses 130+ for image formation, subclasses 168+ for charging, subclasses 177+ for exposure, subclasses 222+ for development, subclasses 297+

- for transfer, subclasses 320+ for fixing, subclasses 343+ for cleaning, and subclasses 361+ for document handling.
- 428, Stock Material or Miscellaneous Articles, appropriate subclasses, for a stock-material product in the form of a single or plural layer web or sheet, and which may be useful as a projection screen, but with no optical limitations; and especially subclasses 143+ for such a stock-material product comprising embedded particulate matter (e.g., glass) which acts to diffuse or reflect light.
- 434, Education and Demonstration, subclasses 180, 314+, and 324+ for an image projector having mechanism for uncovering an answer or in combination with an educational device which includes means by which a student controls or operates the device and subclass 286 for planetarium projectors.

SECTION IV - GLOSSARY

CONCENTRATED LIGHT SOURCE

The source of illumination for the projector. It may be either a projection lamp or a lens and mirror system utilizing sunlight.

CONDENSING LENS

A lens which parallels the light from the light source for uniform distribution over the object to be projected and makes the light impinge on the object at right angles to the plane of the object.

FILM STRIP

An indeterminate length of film having a plurality of images thereon.

IMAGE

The optical counterpart of an object produced by a lens or other optical system. In an image projection system an image of an object is formed on a screen or other viewing surface. A photographic camera forms an image of an object on a photosensitive film. After the film is developed, a picture of the original object appears on the film. A picture of this type is generally employed as the object in image projectors.

LIGHT PARALLELING STRUCTURE

Optical elements for directing the light from the concentrated light source so that it impinges on the object perpendicular to the plane of the object and uniformly illuminates the object to be projected.

OBJECT

The object is the subject, the image of which is to be projected (see definition of image).

OBJECT HOLDER

Structure for holding the object in the projecting position, as well as for moving the object in and out of such position. Examples are slide transfer mechanisms and film holders.

PROJECTION OBJECTIVE OR PROJECTION LENS SYSTEMS

Forms an image of the object on the viewing surface, and is located between the object and viewing surface.

PROJECTOR OR STEREOPTICON

A device for projecting an image of an object by passing light through or around the object or reflecting light from the object on a viewing screen for the purpose of more conveniently viewing the image of the object. The image is usually enlarged or reduced in size with reference to the object; and the image is also usually in a more convenient position for viewing or recording. Since projection is a common property of lenses and mirrors, the projectors in this class involve some structure for facilitating or enhancing the projection over what incidentally occurs in these optical elements. A projector generally includes (a) a concentrated light source from either an artificially or natural emanation, (b) a light paralleling element (e.g., condensing lens), (c) a holding or positioning device for the object to be projected, (d) a projection objective or projection lens system comprising one or more optical elements for directing the light after it passes through or is reflected from the object to form an image, and (e) a screen for receiving the image and making the image formed by this light available for use. The projectors in this class utilize natural or artificial (usually) light within the visible spectrum. The object to be projected is usually planar in natural with the plane extending transverse to the direction of projection, and may be transparent (e.g., slide or transparency) or reflective (e.g., opaque sheet). The projection may be limited to the outline of an opaque object such as a shadow, and in this case the

object need not be planar. The term projector as used in this class designates the above structure either with or without the screen. In operation the object is positioned outside one focal plane of the projection lens system and the image is formed on a viewing surface outside the opposite focal plane of the projection lens system. The closer the object is to the one focal plane the farther the image will be from the other focal plane, and the bigger the image will be. In the projector the relative positioning of the object is usually obtained by moving the projection lens system and adjusting its focal length rather than by changing the position of the object. As indicated in FACSIMILE, TELEVISION, AND TELEGRAPHIC PRINTING, above, the projectors including or adapted for use with recording surfaces are classified elsewhere.

SCREEN

This is a planar (usually) light diffusing surface positioned with its plane surface substantially transverse to the projector light for presenting the image in viewable form.

SLIDE

A piece of transparent film having a single image thereon, and also having a frame or two glass plates to help keep the piece of film from bending.

STEREOPTICON

See Projector.

SUBCLASSES

1 **KALEIDOSCOPIC:**

This subclass is indented under the class definition. Subject matter including a plurality of reflecting surfaces so arranged in the optical path that images of objects viewed as multiple images of the objects arranged in a symmetrical pattern and relative motion between the objects and the reflecting surfaces or between the reflecting surfaces and observer changes the patterns.

- (1) Note. The reflecting surfaces are usually elongated and at an angle to each other which forms a V-shaped trough when two mirrors are employed.

SEE OR SEARCH CLASS:

359, Optical: Systems and Elements, subclasses 616+ for a kaleidoscope where a pattern is merely viewed. See (2) Note to Class 359, subclass 616.

2 **Including particles loosely housed for agitation:**

This subclass is indented under subclass 1. Subject matter including a chamber of loosely assorted objects, usually of irregular shapes, transparent and varicolored, which may be tumbled over each other by rotation of the chamber or moved in other ways to give ever-changing visual effects.

SEE OR SEARCH CLASS:

359, Optical: Systems and Elements, subclass 617 for similar kaleidoscope structure where the pattern is viewed without use of an image projector.

3 **HELIOSTATS:**

This subclass is indented under the class definition. Subject matter wherein solar light is employed to project an image and comprising essentially a reflector and mechanism for causing it to follow the apparent movement of the sun so as to keep the direction of the reflected light constant and appropriate for projecting the image.

- (1) Note. This subclass provides for sub-combinations of a Heliostat not provided for elsewhere.

4 **ASCENDING HEATED AIR CHANGES PICTURES:**

This subclass is indented under the class definition. Subject matter wherein an object to be projected is moved to and from the projection position by convection currents of air which usually move a fan which in turn moves the object.

5 **MAPPING OR AERIAL PHOTOGRAPH RECTIFYING:**

This subclass is indented under the class definition. Subject matter wherein the projection system is especially adapted to project an image (usually an aerial photograph of the terrain) on a surface for making a map, or to compensate for the orientation of the camera which

produced the aerial photograph being projected, or to align or superimpose parts of such aerial photographs.

SEE OR SEARCH THIS CLASS, SUBCLASS:

1, for projection of a map or projection of a target or spot light on a map.

SEE OR SEARCH CLASS:

33, Geometrical Instruments, subclass 1 for similar subject matter combined with measuring means and subclasses 20.1+ for similar subject matter combined with a claimed scribing or tracing means.

250, Radiant Energy, for similar subject matter employing photocells.

348, Television, subclasses 144+ for television systems in which images of maps may be projected to effect a comparison of the maps.

356, Optics: Measuring and Testing, subclasses 391+ for projecting images of maps to compare them.

6 Stereoscopic:

This subclass is indented under subclass 5. Subject matter wherein the projected pictures were taken from different points of view and have separate perspectives corresponding to the perspective offered by the right and left eyes of a viewer.

SEE OR SEARCH CLASS:

348, Television, subclasses 42+ for stereoscopic television systems.

356, Optics: Measuring and Testing, subclass 2 for structure responsive to two stereoscopic images and furnishing a contour plot of the earth based on the distinctions of the images.

359, Optical: Systems and Elements, subclass 470 for similar subject matter where the pictures are merely viewed and no image is projected on a screen.

7 STEREOSCOPIC:

This subclass is indented under the class definition. Subject matter where the projection system is adapted to project pairs of individual picture elements having separate perspectives corresponding to the perspective offered by the right and left eyes of a viewer.

(1) Note. The individual picture elements are taken from two different points of view and each eye of the viewer receives only the information obtained from one point of view when viewing the projected images on a screen.

(2) Note. This subclass also provides for attachments which convert a conventional still projector to a stereoscopic projector.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10, for projection systems for creating an illusion of three dimensional views without employing separate left-right images.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclasses 57+ for stereoscopic motion pictures devices.

359, Optical: Systems and Elements, subclasses 462+ for stereoscopic viewers.

378, X-Ray or Gamma Ray Systems or Devices, subclasses 41+ for stereoscopic X-ray devices.

396, Photography, subclasses 324+ for stereoscopic still cameras.

8 Polarizer:

This subclass is indented under subclass 7. Subject matter including light polarizing material in at least one light path for allowing light of a certain polarization to pass therethrough and blocking certain other light.

9 Slide transfer mechanism:

This subclass is indented under subclass 7. Subject matter including mechanism for moving stereoscopic slides into the projection path; or portions of this mechanism such as a slide changer which moves slides from a magazine into the projection path and back to the magazine or a magazine which moves to position individual slides next to the slide changer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

103+, for projector slide transfer mechanism generally.

10 RELIEF ILLUSION:

This subclass is indented under the class definition. Subject matter wherein the projection system is adapted to provide an illusion of depth from a single projected image obtained from only one point of view.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 7, for stereoscopic projectors employing pictures taken from two perspectives corresponding to right and left eye views of the observer.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 86 for motion picture devices giving relief illusion.
359, Optical: Systems and Elements, subclasses 478+ for viewers which give an illusion of depth.

11 TARGET, MAP OR NAVIGATION PROJECTION:

This subclass is indented under the class definition. Subject matter wherein the projector is especially adapted to project an image of a map or navigation chart; an image of a target onto a map or chart; or a target which represents a vehicle such as an aircraft onto a screen.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 114, for a pointer which denotes a certain part of a projected image.

SEE OR SEARCH CLASS:

- 73, Measuring and Testing, subclass 178, for navigation instruments.
340, Communications: Electrical, subclasses 988+ for electrical means in combination with a projector for plotting a vehicle's position.
434, Education and Demonstration, subclasses 44 and 69+ for similar structure where training mechanism is claimed which the student controls, adjusts or handles to help train him.

12 With or for vehicle:

This subclass is indented under subclass 11. Subject matter wherein the projector is in combination with a mobile carrier such as a ship,

automobile, or airplane; or in which the projector is adapted to be employed in a vehicle.

13 WITH OR FOR VEHICLE:

This subclass is indented under the class definition. Subject matter in which the projector is in combination with a mobile carrier, such as a ship, automobile, or airplane; or in which the projector includes structure which significantly adapts the projector for operation in a vehicle.

- (1) Note. To be termed a vehicle for purposes of classification in this subclass (13) the vehicle must be for some purpose other than to merely transport the projector such as a cabinet projector on rollers. Such cabinet projectors are elsewhere (see Search This Class, subclass below).

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 12, for a projector for maps or navigation in combination with a vehicle.
30+, for cabinet projectors.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 132 for a motion picture projector in combination with a vehicle.

14 Instrument indicator:

This subclass is indented under subclass 13. Subject matter wherein the image projected is of the face of an instrument which informs the driver about a condition or position of the vehicle such as a speedometer or compass.

- (1) Note. Where details of the instrument are claimed, classification is in the class having the given instrument.

15 WITH SOUND ACCOMPANIMENT:

This subclass is indented under the class definition. Subject matter wherein the image projector is synchronized or otherwise combined with a means to reproduce sounds, such as music or speech, and which sounds bear a relationship to the projected pictures.

- (1) Note. The Optics: Motion Pictures, class provides for motion picture projectors accompanied by sound where the 'motion' is either claimed or disclosed

(see Search Class note below). This Class (353) provides for sound accompanied slide or still picture projectors.

SEE OR SEARCH CLASS:

- 40, Card, Picture, or Sign Exhibiting, subclasses 455+ for a changeable exhibitor with sound accompaniment.
- 352, Optics: Motion Pictures, subclasses 1+ for a sound-accompanied motion picture projector. See (1) Note above.
- 360, Dynamic Magnetic Information Storage or Retrieval, subclasses 1+ and 80 for magnetic recorders or reproducers combined with nominal projector apparatus.
- 369, Dynamic Information Storage or Retrieval, subclass 70 for control by a sound-conversion device of a nominally claimed image projector.

16 Phonograph:

This subclass is indented under subclass 15. Subject matter wherein the sound accompaniment is an instrument for reproducing sounds by means of the vibration of a stylus or needle following a spiral groove on a revolving circular disc or cylinder.

SEE OR SEARCH CLASS:

- 40, Card, Picture, or Sign Exhibiting, subclass 455 for a changeable exhibitor in combination with a phonograph.

17 In carrying case:

This subclass is indented under subclass 16. Subject matter including a housing having a handle for carrying the enclosed projector and phonograph.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 72+, for a common housing from which the projector or viewing screen is removable.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclasses 34+ for a sound-accompanied motion picture housing.

18 Cabinet encloses projector and one side of screen:

This subclass is indented under subclass 16. Subject matter including a cabinet which encases the projector and part of the viewing screen and usually also encases the phonograph; and which excludes outside light from the projection path to form a unitary device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 74, and see the search notes thereunder for cabinet-type projectors which do not have sound accompaniment.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclasses 34+ for a sound-motion picture housing.

19 Common picture and sound record carrier system:

This subclass is indented under subclass 15. Subject matter wherein the picture to be projected and the audio record are both on the same film strip or slide or where both are mounted in a common frame.

- (1) Note. This subclass (19) provides for an image projector and sound reproducer in combination which employs a common picture and sound record carrier. Subclass 120, below, provides for the common carrier, per se.

20 POLARIZER OR INTERFERENCE FILTER:

This subclass is indented under the class definition. Subject matter including a polarizing element or interference filter in the optical path to modify the light in said path.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 483.01 through 494.01 for polarizers, per se, and subclasses 577+ for interference filters, per se.

21 EDITING OR AUXILIARY VIEWING:

This subclass is indented under the class definition. Subject matter wherein the projector is particularly designed so that the pictures to be projected may be directly inspected for faults

or arranged in a particular position or sequence; or where the projector has auxiliary means so that the pictures may be previewed before projection or may be viewed on an auxiliary screen during projection on the main screen.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, appropriate subclasses for similar structure employed to edit or preview motion-picture film.

356, Optics: Measuring and Testing, for testing film for flaws.

22 TRANSPARENT PLATE:

This subclass is indented under the class definition. Subject matter including a transparent plate having parallel flat surfaces in the optical path through which the projecting light beam passes.

23 Plate part of film gate:

This subclass is indented under subclass 22. Subject matter wherein the transparent plate is an essential part of the gate to position a film strip in the focal plane of the projector.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclasses 221+ for a motion-picture projector having a film gate.

24 Including lens support:

This subclass is indented under subclass 23. Subject matter in combination with means to position a lens in the projector.

SEE OR SEARCH THIS CLASS, SUBCLASS:

96, for a projector having a film gate, which does not have a transparent plate, and a lens support.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 231 for a motion-picture film gate in combination with a lens mount.

25 SELECTIVE DATA RETRIEVAL:

This subclass is indented under the class definition. Subject matter wherein a desired one of a plurality of individual units of information may selectively be moved into the optical path for

projection from a stored or nonprojectable position either by positioning the unit in the optical path or by moving the optical path to the individual unit.

(1) Note. The subject matter here (subclasses 25, 26, 28) involves the selection of any one of the units from the group without regard to any sequential arrangement of the units as is provided for in the subclasses below.

(2) Note. The data or information projected here is a record such as an account or real estate register rather than a mere picture to be viewed for enjoyment.

SEE OR SEARCH CLASS:

355, Photocopying, subclasses 40+ for selecting the data to be copied by a projection printer.

365, Static Information Storage and Retrieval, subclasses 185.01+ for floating gate memory storage (e.g. flash memory), subclass 120 for the storage and retrieval of information which has inherent means for reading information into and out of the storage system.

382, Image Analysis, subclasses 181+ for character-recognition systems.

399, Electrophotography, subclasses 9+ for diagnostics, subclasses 38+ for controls, subclasses 130+ for image formation, subclasses 168+ for charging, subclasses 177+ for exposure, subclasses 222+ for development, subclasses 297+ for transfer, subclasses 320+ for fixing, subclasses 343+ for cleaning, and subclasses 361+ for document handling.

26 Film strip:

This subclass is indented under subclass 25. Subject matter wherein the data is stored on a strip of film of indeterminate length which usually is supported on a pair of reels which are rotated to bring selected portions of the data into position for projection.

27 Plural picture rows on single microcard:

This subclass is indented under subclass 25. Subject matter wherein the data is stored in numerous individual areas which are arranged

in a plurality of rows or columns on a rectangular sheet of microfilm which is in a flat condition during projection; the optical path and microcard usually being relatively movable to select the individual area to be projected by alignment with the optical path which may include moving a mask to block light from going through the undesired data.

28 PROJECTED IMAGE COMBINED WITH REAL OBJECT:

This subclass is indented under the class definition. Subject matter wherein the projected image is combined with a real object so that the two may be viewed simultaneously.

- (1) Note. The real object may be a person or a sign or screen having indicia thereon. However, a mere sign or screen without inherent indicia is not considered a real object for the purpose of this definition since it would add nothing informative to the viewed scene.
- (2) Note. This subclass provides only for apparatus which produces a scene including a real object and a projected image; if the real object also is projected, classification is in subclasses 30+ below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

30+, for the combination of a plurality of projected images. See (2) Note above.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclasses 48+ for methods involving motion pictures and scenery and staging effects, and subclasses 88+ for sets.
- 356, Optics: Measuring and Testing, subclasses 391+ for a projected image in combination with a real object for the purpose of measuring or comparing the two.
- 472, Amusement Devices, particularly subclass 61 for a projected image in combination with a stage which includes a real object and subclasses 75+ for a stage apparatus or setting appropriate therefor.

29 ADDITIONAL ILLUMINATION OF OR NEAR PROJECTED IMAGE:

This subclass is indented under the class definition. Subject matter including a projector for projecting an image on a surface and also means to illuminate the periphery of that surface to form a lighted border or means to direct additional illumination on the surface for the purpose of improved contrast, picture definition, brilliancy or tinting.

SEE OR SEARCH THIS CLASS, SUBCLASS:

84+, for a color filter in the optical path which projects the image.

SEE OR SEARCH CLASS:

- 40, Card, Picture, or Sign Exhibiting, subclasses 541+ for illuminated signs, especially subclasses 546+ for edge illuminated.
- 352, Optics: Motion Pictures, for a motion picture projector with additional means to illuminate the projected image.
- 359, Optical: Systems and Elements, subclass 450 for a viewing screen having a lighted border.

30 COMPOSITE PROJECTED IMAGE:

This subclass is indented under the class definition. Subject matter including at least one image projector to project a plurality of images on a screen in superimposed or in mosaic relationship so that the images each contribute a part of the composite image.

- (1) Note. One of the images may merely be projected on the screen at intervals while the other is steadily projected. However, if one image is faded in while the other is faded out with no cooperation of the images, classification is not here but in one of subclasses 83, 86, 90 or 93, below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 28, for a device to project an image in combination with a real object.
- 29, for means to project an image in combination with means to project a mere white or colored light.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclasses 46, 47, 70+, 97, 131+, and 133+ for motion picture devices for composite pictures or images.
- 355, Photocopying, subclasses 40+ for projection printing a composite image.
- 356, Optics: Measuring and Testing, subclasses 391+ for plural projected images on a screen for comparison or measuring purposes.
- 368, Horology: Time Measuring Systems or Devices, subclasses 82+, and 239+ for means to project a clock face in combination with an advertisement.
- 399, Electrophotography, subclasses 9+ for diagnostics, subclasses 38+ for controls, subclasses 168+ for charging, and subclasses 177+ for exposure.

31 Multicolor picture:

This subclass is indented under subclass 30. Subject matter including means to project a composite image from a set of pictures, each picture corresponding to a particular color which is different from the color of the other pictures of the set.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 7+, for a stereoscopic projector employing a set of pictures, each picture having been photographed in a different color.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclasses 66+ for a color motion-picture device.

32 Lenticular film:

This subclass is indented under subclass 31. Subject matter wherein the projector is adapted for projecting images from lenticular film and usually includes a multizone color filter.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 120, for a film strip, per se.

33**Prism:**

This subclass is indented under subclass 31. Subject matter including a prism, usually for directing light to the respective pictures or for combining light which has come through the respective pictures.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 81, for a projector having a prism.

34**Plural projection paths with single light source:**

This subclass is indented under subclass 30. Subject matter including a single lamp and two or more optical paths and means to simultaneously direct light from the lamp to the optical paths.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 49, for plural projection paths and a single light source in a projector for moving the image on a viewing screen.
- 63+, for an epidiascope projector having plural optical paths and a single light source.
- 82, for similar structure where the light is usually directed alternately to two optical paths.

35**Slides and/or film superposed in projector:**

This subclass is indented under subclass 30. Subject matter wherein a plurality of slides or film strips are aligned in the optical path of the projector so that light passes sequentially through more than one of them to form a composite image on a viewing screen.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 97 for a motion-picture projector for superposed film strips.

36**Letters or numbers:**

This subclass is indented under subclass 30. Subject matter wherein a plurality of numbers or letters are individually projected adjacent each other on a viewing screen to form a meaningful image or where indicia is projected adjacent or upon a scene on the viewing screen, usually for the purpose of advertising.

37 Reflector between lamp and screen:

This subclass is indented under subclass 30. Subject matter including a mirror or reflecting prism positioned between the light source and the viewing screen to direct light along the optical path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 33, for a composite projector for multi-color pictures which includes a prism.
- 67, for a cabinet-type projector for projecting an image of an opaque object, wherein the projector includes a reflector.
- 72, for a projector and a screen in a housing which is open during projection wherein the housing includes a reflector.
- 77, for a cabinet-type projector having a reflector.
- 81, for a projector with a prism.
- 98, for a projector with a reflector.

38 UNITARY PLURAL REFRACTING SURFACES:

This subclass is indented under the class definition. Subject matter including a transparent structure having a plurality of discrete surfaces, such as lenticles or facets, which extends across the optical path for modifying the light which passes therethrough.

- (1) Note. This subclass (38) provides for a diffusing element, such as a glass plate having a ground-glass surface for softening the projected image, in the optical path of the projector.

39 MICROPROJECTOR:

This subclass is indented under the class definition. Subject matter including a lens system (usually of the compound type) which provides great magnification of the projected image of microscopical objects.

- (1) Note. Said lens system may be in a common microscope which is in combination with means to project an image on a viewing screen to form a projection microscope or the microscope and projection structure may be built as a unit to form a microprojector.

SEE OR SEARCH CLASS:

- 356, Optics: Measuring and Testing, subclasses 237.1+ for similar structure employed to detect flaws in a material or article and subclasses 391+ for similar structure where the image is compared to a standard.
- 359, Optical: Systems and Elements, subclasses 362+ for compound lens systems generally.

40 SCALE OR SCALE INDICATOR PROJECTOR:

This subclass is indented under the class definition. Subject matter including a scale or scale indicator together with optical elements arranged to project an image of the scale or scale indicator.

- (1) Note. The broad recitation of the scale or indicator actuator does not preclude classification here. However, where the scale actuator is claimed in detail classification is with the art to which the actuator relates. Examples of such are in the Search Notes below. Where the scale is projected in conjunction with the object to be measured, projected or not, classification is in Class 356 Optics: Measuring and Testing, subclasses 391+. The combined recitation of the scale and indicator broadly does not preclude classification here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 14, for projection of a speedometer or compass face.

SEE OR SEARCH CLASS:

- 33, Geometrical Instruments, subclass 348 for a compass, a level or a plumb having an optical viewer associated with the indicator thereof.
- 73, Measuring and Testing, subclass 293, for a liquid-level gage in combination with a projector.
- 81, Tools, for scale projection combined with machine tools.
- 82, Turning, for scale projection combined with machine tools.
- 83, Cutting, for scale projection combined with machine tools.

- 116, Signals and Indicators, subclasses 246+ for a radio-tuning indicator and projection means in combination.
- 177, Weighing Scales, subclass 178, for a projector in combination with a weighing scale.
- 340, Communications: Electrical, for an electrical-signal device as there defined combined with means to project an image of the signal.
- 356, Optics: Measuring and Testing, for scale projection combined with an optical test as there defined.
- 359, Optical: Systems and Elements, subclasses 436+ for scale reading with the aid of an optical element or system where there is no image projection.
- 368, Horology: Time Measuring Systems or Devices, subclasses 41+, 82+, and 239+ for the combination of a clock and projector.
- 408, Cutting by Use of Rotating Axially Moving Tool, subclass 16, for scale projection combined with that type machine tool.
- 409, Gear Cutting, Milling, or Planing, for scale projection combined with machine tools.
- 41 Vernier or plural scales:**
This subclass is indented under subclass 40. Subject matter including more than one scale, such as in a vernier or micrometer for making fine or exact measurements.
- (1) Note. One of the scales may give the general reading while the other gives a finer or decimal reading or the two scales may slide side-to-side and the reading be where scale lines from the two respective scales intersect. Only one of the plural scales need be projected.
- 42 POINTER:**
This subclass is indented under the class definition. Subject matter wherein the projector includes an optical or mechanical pointer for indicating to the observer particular parts of a projected image on a projection screen, or light-spot pointers, per se.
- (1) Note. Generally light projectors for mere illumination are classified elsewhere (see Search Class note below). However,
- in the case of a light-spot pointer, the device, per se, is classified here even though it is not combined with an image projector.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
11, for means to project a spot of light representing a target such as a ship or aircraft.
- SEE OR SEARCH CLASS:
362, Illumination, subclasses 257+ for mere light projectors. See (1) Note above.
- 43 GUN, FLASHLIGHT OR BATTERY OPERATED TYPE:**
This subclass is indented under the class definition. Subject matter including a projector housing shaped like a pistol, gun or flashlight or such projector or other projector which uses a dry-cell battery for a power source.
- (1) Note. A conventional flashlight may be attached to other structure to make a complete projector.
- SEE OR SEARCH CLASS:
352, Optics: Motion Pictures, subclass 95 for gun-type motion-picture devices.
- 44 SIMULTANEOUS PROJECTION AND MANUAL DELINEATION:**
This subclass is indented under the class definition. Subject matter wherein the projector is constructed to permit a person to write or draw simultaneously on a surface while an image of that writing or drawing is projected from the surface on a viewing screen; or including means such as tracing paper on which an image is projected while a person simultaneously makes a record corresponding to the image by tracing the image with a pencil or the like.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
42, for simultaneous projecting and pointing out part of the projected image.
- SEE OR SEARCH CLASS:
359, Optical: Systems and Elements, subclass 447 for a projection screen with means to trace an image.

45 Score register:

This subclass is indented under subclass 44. Subject matter wherein the writing which is projected is the score of a game such as bowling.

46 IMAGE MOVES ON SCREEN:

This subclass is indented under the class definition. Subject matter including a projector adapted to project an image which moves on or across the viewing screen.

- (1) Note. Usually the object is on a moving tape as in a combined-stock ticker tape and projector.
- (2) Note. Subclasses 46+ takes a detailed projector in combination with a nominal stock ticker. The Telegraphy class takes the combination of a detailed stock ticker or other printer in combination with either a detailed or a broadly claimed projector. Class 178, subclass 42 takes the combination of a nominal printer, a nominal projector and a detailed tape-feeding means since Class 226 does not provide for the combination. Class 226 provides for tape-advancing means in combination with a projector when only one optical element is claimed, or in combination with a nominal printer but does not provide for a combination including a projector and a printer.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 4, for a projector where the image is moved by rising, heated air.

SEE OR SEARCH CLASS:

- 178, Telegraphy, subclasses 23+ for the combination of a detailed stock ticker or other Class 178 printer in combination with either a detailed or a broadly claimed projector; also see subclass 42 for a stock ticker in combination with a projector. See (2) Note above.
- 226, Advancing Material of Indeterminate Length, for means to pull a tape where only a single optical element such as a film gate or lens is claimed. See (2) Note above.

47 Cabinet enclosed projector and one side of screen:

This subclass is indented under subclass 46. Subject matter including a cabinet which encases the projector and part of the viewing screen and which excludes outside light from the projection path to form a unitary device.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 67, 71, and 74, for other cabinet-type projectors.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 104 for a cabinet-type motion-picture projector.

48 Plural projectors or projection paths:

This subclass is indented under subclass 46. Subject matter including a plurality of projectors as there defined or two or more optical paths for projecting onto separate viewing screens or separated areas on a viewing screen.

- (1) Note. Subclasses 30+ above has plural projectors for projecting to form a composite image on a common viewing screen.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 30+, 89+ and 94, for plural projectors or projection paths.

49 Single light source:

This subclass is indented under subclass 48. Subject matter including only one lamp for the two or more optical paths and means to direct light from the lamp to the optical paths.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 34, 63+ and 82, for other projectors having a single light source and a plurality of optical paths.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, for plural motion-picture projectors having a single light source.

50 Reflector between lamp and screen:

This subclass is indented under subclass 46. Subject matter including a mirror or reflecting prism positioned between the light source and the viewing screen to direct light along the optical path.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

67, 72, 77, 81, and 98, for other projectors having a reflector in the optical path.

51 Plural:

This subclass is indented under subclass 50. Subject matter including a plurality of reflectors as there defined.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

73, 78, 81, and 99, for projectors having plural reflectors in the optical path.

52 TEMPERATURE CONTROL:

This subclass is indented under the class definition. Subject matter including means to heat, cool, reduce the rise in temperature, or ventilate all or part of the projection system or the picture to be projected.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

4, for slide changing by rising heated air.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclasses 143+ and 202 for fire preventing, ventilating and cooling a motion-picture projector.

355, Photocopying, subclass 30 for a projector printer having temperature control.

362, Illumination, subclass 293 for such structure having a heat filter and subclass 294 for light-projection structure having ventilating and cooling means. See the note to Class 362 below the class definitions to this Class 353.

399, Electrophotography, subclasses 9+ for diagnostics and subclasses 38+ for controls.

53 Means to preheat slides or film:

This subclass is indented under subclass 52. Subject matter including means to conduct heat or direct heated air to a film-slide magazine or to a film strip to heat the film before projection to prevent unequal expansion of the film (known as 'popping') and thus prevent distortion of the projected image.

54 Liquid coolant:

This subclass is indented under subclass 52. Subject matter including a liquid, usually water, in or near the projection path which absorbs heat energy thus reducing the amount of heat transmitted to the film or other object to be projected.

SEE OR SEARCH CLASS:

359, Optical: Systems and Elements, subclass 358 for liquid in an optical element or system which affects infrared radiation.

55 Heat filter:

This subclass is indented under subclass 52. Subject matter including a sheet of material in the optical path which at least partially separates the heat or infrared energy from the visible-light energy; by absorbing the heat energy, by reflecting the heat energy and transmitting the visible light, or by transmitting the heat energy while reflecting the visible light toward the object to be projected.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 148 for a heat filter in a motion-picture projector.

359, Optical: Systems and Elements, subclasses 350+ for heat filters generally.

362, Illumination, subclass 293 for a light projector having a heat filter.

56 Heat resistant or insulating material:

This subclass is indented under subclass 52. Subject matter including a low heat-transmitting shield, liner, or partition which absorbs or reflects heat and stops heat from reaching particular parts of the projector; a mask having an aperture in the optical path which blocks part of the heat and light rays; a mask which alternately blocks the optical path for the purpose of reducing the heat energy reaching the object; or

nonheat-conducting material employed in constructing the projector to reduce the transfer of heat to particular projector parts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

88+, for shutters which are not set forth as being for the purpose of blocking heat energy but which would in fact do so.

57 Blower:

This subclass is indented under subclass 52. Subject matter including a fan or rotor and means to rotate the fan or rotor to move cooler air into the projector and to move warmer air out of the projector to cool the parts of the projector.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 202 for a motion-picture projector light source with ventilating and cooling, and subclasses 146+ for film cooling.

362, Illumination, subclass 294 for a light projector or a subcombination of an image projector with no image-projecting structure including ventilating or cooling means. See also, section VII of the Class Definitions of this Class 353.

58 Plural:

This subclass is indented under subclass 57. Subject matter wherein the projector includes a plurality of fans or rotors which force air through parts of the projector.

59 Common motor for blower and slide changer:

This subclass is indented under subclass 57. Subject matter wherein the motor which rotates the blower is operatively connected with the slide-transferring mechanism to provide the force which moves the slides.

60 Air directed against face or back of object:

This subclass is indented under subclass 57. Subject matter wherein the air is particularly forced against and moves substantially perpendicular to the front or back side of an object to be projected to hold the object in place during projection or to merely cool the object.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 146 for similar structure in a motion-picture projector.

61 Particular air ducts or deflector:

This subclass is indented under subclass 57. Subject matter including special passages or deflectors to direct air to certain parts of the projector for cooling thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

60, for means to direct air to a flat side of the object being projected.

62 STENCIL OR PERFORATED PLATE PROJECTOR (E.G., SKY OR CLOUD PROJECTOR):

This subclass is indented under the class definition. Subject matter wherein the projector is particularly adapted to project an image of an opaque stencil or opaque plate which is perforated so as to form a particular message or design on a viewing screen or on a cloud in the sky.

(1) Note. The projectors in this subclass direct light on the far side or side of the opaque object opposite the viewing screen or cloud as in transparency projector. In the opaque projectors in subclasses 63+ and 65+ below light is projected onto and reflected from the near side or side of the object nearer the viewing screen.

63 EPIDIASCOPE (I.E., SELECTIVE OPAQUE AND TRANSPARENCY PROJECTOR):

This subclass is indented under the class definition. Subject matter including a projector which selectively projects an image from an opaque object by light reflection therefrom or alternatively projects an image from a transparency by directing light therethrough.

SEE OR SEARCH THIS CLASS, SUBCLASS:

62, for a projector which projects the image of a stencil or perforated object by projecting light from the far side of

the object to produce a profile or silhouette on a viewing screen.

- 64 Plural reflectors between lamp and screen:**
This subclass is indented under subclass 63. Subject matter including a plurality of mirrors or reflecting prisms positioned between the light source and the viewing screen to direct light along or toward the optical path.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

73, 78 and 99, for a projector with plural reflectors.

- 65 EPISCOPE (I.E., OPAQUE PROJECTOR):**
This subclass is indented under the class definition. Subject matter including means to project the image of an opaque object by reflecting light from the object rather than projecting light through a slide or film as in a transparency projector.

(1) Note. The object may be a page of a book, a three-dimensional object or other generally-opaque object.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

62, for a projector which projects the image of a stencil or perforated object by projecting light from the far side of the object to produce a profile or silhouette on a viewing screen.

63+, for a projector which may selectively be employed to project an opaque or transparent object.

- 66 Reflector between lamp and screen:**
This subclass is indented under subclass 65. Subject matter including a mirror or reflecting prism positioned between the light source and the viewing screen to direct light along the optical path.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

98, for a projector having a reflector.

- 67 Cabinet encloses projector and one side of screen:**
This subclass is indented under subclass 66. Subject matter including a cabinet which encases the projector and part of the viewing

screen and which excludes outside light from the projection path to form a unitary device.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

77+, for a cabinet-type projector having a reflector.

- 68 SELECTIVE SLIDE AND FILM STRIP PROJECTOR:**

This subclass is indented under the class definition. Subject matter including a projector which is particularly adapted to selectively project an image to a viewing screen from a slide or from a film strip.

(1) Note. These devices usually have means to adjust a projection gate for either slides or strip film or have two such gates in sequence and means to focus on either one or the other.

- 69 DISTORTION COMPENSATION:**

This subclass is indented under the class definition. Subject matter including a rectifying element in the optical path, or means to adjust an element in the optical path to offset the undesired effects of abnormalities of the film or slides or undesired effects of the screen and projector alignment.

(1) Note. This subclass 69 has means to compensate for warped film or for film or slides of different size, thickness or density so that an undistorted image of the object on the film will be focused on the viewing screen; while indented subclass 70 has means to compensate for the projection axis being inclined to the viewing screen.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

76, and 101, for a projector with focusing means.

104, for a slide changer adapted to transfer slides of various dimensions.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 140 for motion-picture projectors with focus control.

70 For projection axis inclined to screen:

This subclass is indented under subclass (69). Subject matter including means to eliminate the keystone effect or other distortion when the projector is above the viewing screen, as in most theaters, or when the projection axis is oblique to the screen or some other purpose.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclasses 105+ for an optical rectifier-type motion-picture device.
- 359, Optical: Systems and Elements, subclasses 668+ for an anamorphoser which may be used to correct for distortion.

71 SELECTIVE PROJECTION ON DISTANT OR CABINET SCREEN:

This subclass is indented under the class definition. Subject matter including a cabinet which encases a projector and part of a viewing screen, wherein the projector may be employed to project an image on said viewing screen or wherein the projector may be employed alternatively to project an image on a distant, detached viewing screen.

- (1) Note. The screen in the cabinet may be removed and the projector focused on the distant screen or a reflector may be moved into or out of the optical path so that the projected rays bypass the screen in the cabinet and form an image on the distant screen.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 72, for a projector or screen removable from a common housing.

72 PROJECTOR OR SCREEN REMOVABLE FROM COMMON HOUSING:

This subclass is indented under the class definition. Subject matter including a projector and a screen in a common housing wherein the housing is opened and the projector or screen is at least partially removed when projecting the image on the screen.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 17, for similar structure which additionally houses a phonograph.
- 71, for a cabinet projector which may selectively be employed to project on a distant detached screen as well as on the cabinet screen.
- 74, for a cabinet-type projector where the projector and one side of the screen remain enclosed in the cabinet during use.
- 79, for a projector structurally related to a viewing screen.
- 119, for a housing for a projector only.

SEE OR SEARCH CLASS:

- 312, Supports: Cabinet Structure, subclass 10.1 for a cabinet for a projector where an optical part of the device is only nominally claimed. A patent which claims a projector and a screen or a plurality of optical elements is in this Class 353.

73 Plural reflectors between lamp and screen:

This subclass is indented under subclass 72. Subject matter including two or more mirrors or reflecting prisms in the optical path between the lamp and the viewing screen during use.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 78, for plural reflectors in a cabinet-type projector.
- 99, for a projector having a plurality of reflectors.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 850+ for plural mirrors, per se.

74 CABINET ENCLOSES PROJECTOR AND ONE SIDE OF SCREEN:

This subclass is indented under the class definition. Subject matter including a cabinet which encases the projector and part of the viewing screen and which excludes outside light from the projection path to form a unitary device.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 18, for a cabinet-type projector with sound accompaniment.
- 47, for a cabinet-type projector where the image moves on the screen.
- 67, for a cabinet-type projector for projecting an image of an opaque object.
- 71, for a cabinet-type projector which may selectively be employed to project on a distant detached screen as well as on the cabinet screen.
- 72, for a projector and a viewing screen in a casing which is opened to remove the projector or screen for use.
- 79, for a projector structurally related to a screen.
- 119, for a projector with its housing.

SEE OR SEARCH CLASS:

- 312, Supports: Cabinet Structure, subclass 10.1 for a cabinet for a projector where an optical part of the device is only nominally claimed. A patent which claims a projector and a screen or a plurality of optical elements is in this Class 353.
- 352, Optics: Motion Pictures, for a cabinet-type motion picture projector.

75 Light shield, mask, hood, or diaphragm:

This subclass is indented under subclass 74. Subject matter including opaque or translucent light-limiting means such as a diaphragm, hood, curtain, aperture plate, framing plate, light baffle or shield.

- (1) Note. The light-limiting or controlling means may be positioned either in the light path to block a portion of the light from the lamps or may be positioned near the light path to reduce undesired light to or from the light path.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 97, for projectors having opaque or translucent light-limiting means.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 738+ for a lens in combination with a diaphragm or mask of general

utility and subclasses 227+ for light control by an opaque element or medium movable in or through a light path.

76 Focus or variable magnification:

This subclass is indented under subclass 74. Subject matter including adjustable structure to focus the image of the object on the screen or to increase or decrease the size of the image relative to the size of the object.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 69, for changing focus for warped film or varying size, thickness or density of slides or film.
- 101, for lenses which are adjustable for forming or varying the magnification.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 140 for motion-picture devices with focus control.
- 355, Photocopying, subclasses 55+ for a projection printer having focus or magnification control.
- 359, Optical: Systems and Elements, subclasses 813+, 821, 823+, 827+, and 694+ for adjustable lens supports or mounts.
- 396, Photography, subclasses 89+ for cameras having focusing means.
- 399, Electrophotography, subclasses 9+ for diagnostics, subclasses 38+ for controls, subclasses 130+ for image formation, subclasses 168+ for charging, subclasses 177+ for exposure, and subclasses 222+ for development.

77 Reflector between lamp and screen:

This subclass is indented under subclass 74. Subject matter including a mirror or reflecting prism positioned between the light source and the viewing screen to direct light along the optical path.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 67, for a cabinet-type projector for projecting an image of an opaque object, wherein the projector includes a reflector.

- 72, for a projector and a screen in a housing which is open during projection wherein the housing includes a reflector.
- 81, for a projector with a prism.
- 98, for a projector with a reflector.

78 Plural:

This subclass is indented under subclass 77. Subject matter including a plurality of reflectors as there defined, which usually direct the light to form a folded light path inside the cabinet.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 73, for a projector and a screen in a housing which is open during projection wherein the housing includes plural reflectors.
- 81, for a projector having a reflecting prism and a mirror.
- 99, for a projector with plural mirrors.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 850+ for plural mirrors, per se.

79 STRUCTURALLY RELATED PROJECTOR AND SCREEN:

This subclass is indented under the class definition. Subject matter where the projector is connected to a viewing screen by physical means such as mechanical linkage to space the screen from the projector or electrical wiring to control movement of the screen from the position of the projector.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 72, for the combination of a projector and viewing screen with a casing which opens to expose the projector or screen during use.
- 74, for the combination of a projector and a viewing screen enclosed by a cabinet.

80 Profile or silhouette:

This subclass is indented under subclass 79. Subject matter wherein a shadow image of an article is projected on the viewing screen.

- (1) Note. In this subclass the structure relating the projector and viewing screen may be parts of a machine tool. However, where specific structure of the machine tool is claimed, classification elsewhere, depending on the type of machine tool, see the Search Class Notes below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 62, for devices which project a shadow image of a stencil or perforated plate.

SEE OR SEARCH CLASS:

- 81, Tools, see (1) Note above.
- 82, Turning, see (1) Note above.
- 83, Cutting, see (1) Note above.
- 356, Optics: Measuring and Testing, for devices which are used to compare a profile with a standard.
- 408, Cutting by Use of Rotating Axially Moving Tool, subclass 16 for profile projectors in combination with machine tools. See (1) Note above.
- 409, Gear Cutting, Milling, or Planing, see (1) Note above.

81 PRISM IN LIGHT PATH:

This subclass is indented under the class definition. Subject matter including a prism in the optical path to reflect or refract the light rays of the path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 33, and 36, for a projector for producing a composite image which includes a prism, especially subclass 33 for a composite projector for multicolor pictures which includes a prism.
- 70, for a prism employed to correct for keystone effects.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclass 669 for a lens in combination with a prism anamorphoser and subclasses 831+ for prisms, per se.

82 PLURAL PROJECTION PATHS WITH SINGLE LIGHT SOURCE:

This subclass is indented under the class definition. Subject matter including a single lamp and two or more optical paths and means to direct light from the lamp to the optical paths, usually alternately.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 34, for a projector having plural optical paths and a single light source where the two paths are employed simultaneously to obtain a composite image.
- 49, for plural projection paths and a single light source in a projector for moving the image on a viewing screen.
- 63, for an epidiascope projector having plural optical paths and a single light source.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, for plural motion-picture projectors having a single light source.

83 Dissolve type:

This subclass is indented under subclass 82. Subject matter including means to fade in a picture in one projection path or to fade out the picture in the other projection path, usually by means of a shutter or by gradually shifting the lamp from one projection path to the other.

84 COLOR FILTER:

This subclass is indented under the class definition. Subject matter including means in the optical path to block or absorb particular wavelengths of light.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 7+, for stereoscopic projectors having color filters.
- 29, for an image projector plus additional means to direct light, which may be colored, on or near the projected image.
- 31+, for multicolor-picture projectors.
- 32, for a projector for lenticular film having a color filter.
- 55, for a projector having a heat filter.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 42 for a method of motion-picture projecting including employment of a color filter.
- 359, Optical: Systems and Elements, subclasses 885+ for filters, per se.

85 LAMP CONTROL:

This subclass is indented under the class definition. Subject matter including means to switch the lamp off and on or to otherwise modify the illumination intensity or means to adjustably position the lamp relative to other parts of the projector.

- (1) Note. The projection light sources as here classified include a light source together with some picture-projector structure such as a slide changer or film gate. See Search Class note for illumination generally or where the picture projector is only nominally claimed.
- (2) Note. Shutters or screens which merely block the light are provided for in subclass 88 below and are not in this subclass 85.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 43, for a battery-operated projector.
- 82, for a projector having a single light source and plural projection paths and which projector may have means to control its light source.

SEE OR SEARCH CLASS:

- 40, Card, Picture, or Sign Exhibiting, subclasses 541+ for illuminated signs, and subclasses 442+ for display devices with selective or intermittent illumination.
- 352, Optics: Motion Pictures, for illumination generally or where the picture projector is only nominally claimed; subclasses 198+ for motion-picture projection light sources.
- 355, Photocopying, subclasses 67+ for a projection printer having an illumination system or illumination details.

- 362, Illumination, especially subclass 295 for light projectors with lamp control. See (1) Note above.
- 399, Electrophotography, subclasses 9+ for diagnostics, subclasses 38+ for controls, subclasses 130+ for image formation, subclasses 168+ for charging, and subclasses 177+ for exposure.
- 86 Dissolve type:**
This subclass is indented under subclass 85. Subject matter including means to gradually extinguish the lamp to fade out a picture or to gradually increase the illuminating power of the lamp to fade in a picture.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
83, for a projector having a single light source and plural projection paths and means to dissolve a picture.
- SEE OR SEARCH CLASS:
352, Optics: Motion Pictures, subclass 94 for motion-picture projectors having dissolve effects.
- 87 Lamp position adjustable:**
This subclass is indented under subclass 85. Subject matter including means to movably position the light source, usually relative to a reflector or lens in the projector.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
25+, for a projector where the light source is aligned with a portion of a microfilm.
82, for a projector having a single light source and plural projection paths where the light source may be adjustable.
86, for a projector having an adjustable lamp for dissolve effects.
- SEE OR SEARCH CLASS:
362, Illumination, subclasses 285+ for a light projector including an adjustable light source.
- 88 SHUTTER:**
This subclass is indented under the class definition. Subject matter including means to interrupt the light from the lamp in the projector, usually during movement or changing of the picture carrier.
- SEE OR SEARCH CLASS:
352, Optics: Motion Pictures, subclasses 204+ for motion-picture shutters.
355, Photocopying, subclass 71 for a projection printer having a shutter, diaphragm, polarizer or filter.
359, Optical: Systems and Elements, subclasses 738+ for lenses combined with such shutters or diaphragms and subclasses 227+ for shutters or diaphragms, per se.
396, Photography, subclasses 452+ for camera shutters.
- 89 Plural projection paths:**
This subclass is indented under subclass 88. Subject matter including two or more optical paths for projection of pictures with either a shutter for each path or a shutter which alternately blocks the two paths.
- SEE OR SEARCH CLASS:
352, Optics: Motion Pictures, subclasses 205+ for a motion-picture machine having plural light paths and a shutter.
- 90 Dissolve type:**
This subclass is indented under subclass 89. Subject matter including means to gradually increase the intensity of an image (i.e., fade in) or to gradually diminish the intensity of an image until it is no longer recognizable (i.e., fade out).
- (1) Note. When one picture is being faded in and the other is faded out at the same time both pictures are at least partially on the screen at the same time. This is not considered a composite image, however, since the various parts must cooperate to form such an image as defined in subclass 30 about.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 217 for a motion-picture shutter for dissolve.

91 Solenoid operated:

This subclass is indented under subclass 88. Subject matter including a periodically-energized electromagnet which either directly operates the shutter or which operates some other part of the projector which is connected to the shutter.

92 Slides reciprocated horizontally from magazine:

This subclass is indented under subclass 88. Subject matter including a slide magazine and mechanism to horizontally move the slides individually into the projection path and back into the magazine and to advance the magazine all in cooperation with movement of the shutter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

116, below for similar structure without a claimed shutter.

93 Dissolve type:

This subclass is indented under subclass 88. Subject matter including means to gradually increase the intensity of an image (i.e., fade in) or to gradually diminish the intensity of an image until it is no longer recognizable (i.e., fade out).

- (1) Note. This subclass provides for projectors having shutters disclosed as being for dissolving views and shutters having multiple elements which move into the light path to block the light.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclass 217 for motion-picture shutters for dissolve.

94 PLURAL:

This subclass is indented under the class definition. Subject matter including a plurality of projectors as there defined or two or more light sources with their respective associated optical paths.

- (1) Note. The projectors may be in the same or in different casings.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 30+, for plural projectors employed to form a composite image.
48, for plural projection paths where the image moves on the viewing screen.
82, for plural projection paths where only a single lamp is employed.
89+, for plural projection paths and a significant shutter.

SEE OR SEARCH CLASS:

434, Education and Demonstration, subclass 286 for plural celestial- or planetarium-type projectors.

95 FILM GATE:

This subclass is indented under the class definition. Subject matter including structure in the optical path which positions a film strip in the focal plane of the projector and masks the film edges so that a single frame or picture area is projected.

- (1) Note. Usually the gate includes an aperture plate for framing and a pressure plate for positioning the film against the aperture plate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 23, for a projector having a film gate which includes a transparent plate.
69, for a projector with means to compensate for warpage, varying size, thickness or density of film or slides.
84, for a film gate in combination with a color filter.
97, for a projector with an aperture plate or diaphragm.

SEE OR SEARCH CLASS:

352, Optics: Motion Pictures, subclasses 221+ for motion-pictures film gates.

96 And lens support:

This subclass is indented under subclass 95. Subject matter in combination with means to position a lens in the projector.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 24, for a projector having a transparent plate-type film gate and a lens support.
- 100, for a projector having a lens support.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 231 for a motion-picture film gate in combination with a lens mount.

97 LIGHT SHIELD, MASK, HOOD, OR DIAPHRAGM:

This subclass is indented under the class definition. Subject matter including opaque or translucent light limiting or controlling means such as a diaphragm, hood, curtain, aperture plate, framing plate, light baffle or shield.

- (1) Note. The light-limiting or controlling means may be positioned either in the light path to block a portion of the light from the lamp or may be positioned near the light path to reduce undesired light to or from the light path.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 70, for means to eliminate Keystone effects.
- 75, for light shields, etc., in cabinet-type projectors.
- 79, for a hood which may structurally connect the projector and viewing screen.
- 88, for a projector having a shutter.
- 98, for specular reflectors in the light path.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 738+ for a lens in combination with a diaphragm or mask of general utility and subclasses 227+ for light control by an opaque element or medium movable in or through a light path.
- 369, Dynamic Information Storage or Retrieval, subclasses 118+, for a slit aperture in an optical system for recording or reproducing sound.

98 REFLECTOR:

This subclass is indented under the class definition. Subject matter including a surface, which specularly reflects light, positioned behind the light source or anywhere in the light path between the light source and the viewing screen.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 31, for an episcope having a reflector.
- 37, for a composite projector having a reflector.
- 50, for a projector for moving an image on a viewing screen and having a reflector.
- 67, 72 and 77, for a cabinet-type projector having a reflector.
- 81, for a projector having a reflecting prism.

SEE OR SEARCH CLASS:

- 355, Photocopying, subclasses 43, 45, 49, 51, 57, 60, 65, and 66 for a projection printer having a reflector between the original and the photosensitive paper.
- 359, Optical: Systems and Elements, subclasses 838+ for reflectors, per se.
- 362, Illumination, subclasses 296.01 through 296.1 for light projectors having reflectors.
- 399, Electrophotography, subclasses 9+ for diagnostics, subclasses 38+ for controls, subclasses 130+ for image formation, subclasses 168+ for charging, subclasses 177+ for exposure, subclasses 222+ for development, subclasses 297+ for transfer, subclasses 320+ for fixing, subclasses 343+ for cleaning, and subclasses 361+ for document handling.

99 Plural:

This subclass is indented under subclass 98. Subject matter including a plurality of reflectors as there defined.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 51, for plural reflectors in a projector for moving the image on a viewing screen.

- 64, for an epidiascope having plural reflectors.
 73, and 78, for plural reflectors in a cabinet for a projector and a viewing screen.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 850+ for plural reflectors, per se.
 362, Illumination, especially subclasses 297+ for light projectors having two or more reflectors.

100 LENS SUPPORT:

This subclass is indented under the class definition. Subject matter including means to position a lens in the projector.

- (1) Note. Subclass in the Search This Class, Subclass note below has projector housings which may be recited as having lens apertures in their walls. A patent in this subclass (100) must have structure to support the lens, inside or outside the projector, which is more than a mere aperture in the projector casing.
- (2) Note. Class 359 has lens mounts for projectors where the projector is only nominally claimed. However, if a lamp, slide changer or other projector structure such as details of the housing are claimed the patent is in this Class (353).

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 24, and 96, for a projector having a film gate and a lens support.
 119, for lens apertures in projector casings. See (1) Note above.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 811+ and especially subclasses 819+ for lens supports and mounts of general utility. See (2) Note above.

101 Lens position adjustable:

This subclass is indented under subclass 100. Subject matter wherein the support movably positions the lens for a purpose such as focusing, varying the magnification or facilitating

insertion of the film in the projector near the lens.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 69, for changing focus for warped film or varying size, thickness or density of slides or film.
 76, for lens positioning means in cabinet-type projectors.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclass 140 for motion-picture devices with focus control.
 359, Optical: Systems and Elements, subclasses 813+, 821, 823+, 827+, and 694+ for adjustable lens supports or mounts.
 396, Photography, subclasses 89+ for cameras having focusing means.

102 PARTICULAR CONDENSER:

This subclass is indented under the class definition. Subject matter including a lens in the optical path between the lamp and the object to form and direct parallel rays along the optical axis toward the object or to secure a desired distribution of the light over the surface of the object, the lens usually having a specific surface, shape, index of refraction, or dimensional relationship to the lamp or object whose image is to be projected.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 38, for a unitary condenser lens having plural refracting surfaces.
 100+, for a lens with its support.

SEE OR SEARCH CLASS:

- 359, Optical: Systems and Elements, subclasses 642+ for condenser lenses, per se.
 362, Illumination, subclasses 257+ for illuminating projectors having condensing lenses.

103 SLIDE TRANSFER MECHANISM:

This subclass is indented under the class definition. Subject matter including mechanism for moving slides into the projection path; or portions of this mechanism such as a slide changer which moves slides from a magazine into the

projection path and back to the magazine or a magazine which moves to position individual slides next to the slide changer.

(1) Note. This subclass (103) and those indented hereunder provide for slide changers disclosed for use with projectors while Class 40 provides for slide changers disclosed for use in viewers only. This class provides for slide changers where the indicated use is both for projectors and viewers.

(2) Note. The indented subclasses provide for magazines which are to be employed with certain kinds of slide changers. Class 206, Special Receptacles and Packages, subclass 456 provides for slide magazines, per se, where no relationship or means for connecting to a projector is claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

6, for slide changing by rising heated air.

SEE OR SEARCH CLASS:

40, Card, Picture, or Sign Exhibiting, for slide changers employed in slide viewers. See (1) Note above.

206, Special Receptacle or Package, subclass 456 for slide magazines, per se. See (2) Note above.

104 For slides of various dimensions:

This subclass is indented under subclass 103. Subject matter wherein the slide changer or carrier is particularly adapted to hold or move slides of different lengths, widths, or thicknesses or slides which are distorted or warped.

SEE OR SEARCH THIS CLASS, SUBCLASS:

69, for means in the optical path to correct for distortion.

105 Magnetically operated:

This subclass is indented under subclass 103. Subject matter wherein a magnet, either permanent or electromagnetic, is employed to aid in getting the slides into the correct position for projection.

106 Solenoid:

This subclass is indented under subclass 105. Subject matter wherein the magnet is a periodically-energized electromagnet for moving a slide or slide carrying structure.

107 Rotary slide carrier:

This subclass is indented under subclass 106. Subject matter wherein the slide carrier is the type which is rotated, such as a rotary magazine or a disc to which slides are fixed, about an axis during the slide moving cycle.

108 Slides fixed to movable carrier:

This subclass is indented under subclass 103. Subject matter wherein the carrier is moved to position the slides in the projection path so that the slides remain attached to the carrier before, during and after projection as opposed to being moved from a magazine before projection and to a magazine after projection.

(1) Note. In this subclass most of the patents are to a drum or cylindrical carrier having a circular wall to which slides are attached and on which the slides remain during the projection cycle. The projection lamp is usually mounted inside the drum or cylinder so that as the cylinder is rotated the slide between the lamp and the viewing screen is projected on the screen.

SEE OR SEARCH THIS CLASS, SUBCLASS:

4, for slide changing by rising, heated air.

SEE OR SEARCH CLASS:

40, Card, Picture, or Sign Exhibiting, subclass 361 for similar slide-moving mechanism in viewers.

109 Endless chain or belt:

This subclass is indented under subclass 108. Subject matter wherein the carrier is a chain or belt to which slides are attached or a chain which is formed partially or completely by the individual slide holders.

- SEE OR SEARCH CLASS:
40, Card, Picture, or Sign Exhibiting, subclasses 361+ for viewers with similar slide-moving mechanism.
- 110 Disc:**
This subclass is indented under subclass 108. Subject matter wherein the slides are attached to a flat disc shaped carrier and are in the plane of the disc which disc is rotated in the projection path for removing one slide from and positioning another slide in the projection path.
- SEE OR SEARCH CLASS:
40, Card, Picture, or Sign Exhibiting, subclasses 361+ for a viewer with similar slide-moving structure.
- 111 Gravity operated:**
This subclass is indented under subclass 103. Subject matter wherein at least some movement of the slides to or away from the projection position is caused by the slides own weight, the slides either falling or sliding downwardly.
- 112 Feeder magazine and receptacle:**
This subclass is indented under subclass 111. Subject matter including a magazine in which the slides are stored before being projected and a receptacle, which may be another magazine, to receive the slides after projection.
- 113 Feeder magazine and receiver magazine:**
This subclass is indented under subclass 103. Subject matter including mechanism to move a slide from a first magazine in which slides are stored before projection to a second magazine where the slides are stored after projection.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
112, for a gravity operated slide changer having a feeder and a receiver magazine.
- 114 Slides reciprocated horizontally:**
This subclass is indented under subclass 103. Subject matter wherein the individual slides are moved horizontally into and out of the projection path and are held in a substantially vertical path perpendicular to the projection path during such movement.
- 115 Slides elevated:**
This subclass is indented under subclass 114. Subject matter including means to move a slide vertically in addition to horizontally reciprocating it, usually to raise the slide to the projection level before moving it horizontally into the light path or to raise the slide slightly after it is moved out of the light path so that it can be manually gripped and removed from the slide changer.
- 116 From magazine:**
This subclass is indented under subclass 114. Subject matter including a magazine which is open on at least one side or means to position a magazine so that the slides are movable into the projection path and back into the magazine by means of the reciprocation mechanism.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
92, for a projector having this structure with a claimed shutter.
- 117 Rotary magazine:**
This subclass is indented under subclass 116. Subject matter where the magazine is shaped as a drum and rotates about the central axis of the drum to position different slides for reciprocation to and from the projection path.
- 118 Slides gripped or hooked:**
This subclass is indented under subclass 103. Subject matter including a hook which engages a slide, or a hook on the slide which engages a complementary part on the changer, or mechanism which frictionally grasps the individual slides.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
105, for magnetic gripping.
111+, for devices employing a hook or gripper to elevate slides which later drop because of gravity.
- 119 HOUSING:**
This subclass is indented under the class definition. Subject matter including the structure which substantially encases or encloses projection structure.

- (1) Note. Class 248, Supports, especially subclasses 637+, provides for projector supports where no significant projection structure is claimed. The broad recitation of a projector combined with a support does not preclude classification in Class 248. Class 352 provides in subclass 243 for motion-picture projectors combined with supports as there defined. See (1) Note under said subclass 243.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 17, for a projector and phonograph in a common portable casing.
 42, for gun- or flashlight-type housings.
 52, for projector casings which include means to control temperature.
 72, for a projector or screen removable from a common housing.
 74, for cabinets including a projection screen.
 97, for hoods, baffles or light shields.
 100+, for lens mounts or supports which may be in a casing.

SEE OR SEARCH CLASS:

- 248, Supports, subclasses 637+ for projector supports where there are no optical limitations. See also (1) Note above.
 312, Supports: Cabinet Structure, subclass 10.1 for a cabinet for a projector where the optical parts of the projector are not claimed.
 352, Optics: Motion Pictures, subclass 242 for motion-picture projector housings and subclass 243 for supports.

120 PICTURE CARRIER:

This subclass is indented under the class definition. Subject matter including a film with particular relationships of the pictures thereon to each other or to the dimensions of a film strip, or with indexing means on the film; or including a film or slide frame which has both a picture and a sound record thereon.

SEE OR SEARCH CLASS:

- 40, Card, Picture, or Sign Exhibiting, subclasses 700+ for projector slides with frames.

- 352, Optics: Motion Pictures, subclasses 232+ for picture carriers for motion pictures.

121 METHODS:

This subclass is indented under the class definition. Subject matter including process steps for use in projecting an image of an object on a viewing screen.

SEE OR SEARCH CLASS:

- 352, Optics: Motion Pictures, subclasses 40+ for a method of projecting motion pictures.

122 MISCELLANEOUS:

This subclass is indented under the class definition. Subject matter which is not provided for in any of the preceding subclasses of this class.

END