

ABSTRACTS OF RECENT U. S. PATENTS

1,792,683. **Scanning Element for Television System.** P. R. EGGER. Feb. 17, 1931. A scanning element for a television system comprising a revolvable shaft which is spirally cut away. A plurality of narrow mirrors are formed integral with the cut away portion of the shaft. These mirrors extend transversely of the shaft and serve to reflect light over a broad scanning area as the shaft rotates.

1,792,752. **Light Control by Piezoelectric Crystals with Compensation for Anisotropy.** F. MICHELSEN. Feb. 17, 1931. Piezoelectric crystals are arranged in the path of polarized light from a light source directed upon a light-sensitive film. These crystals are connected in circuit with an oscillator which is modulated in accordance with sound variations. One of the crystals is a dextro-rotatory quartz crystal, that is, a crystal having a clockwise rotational effect, while another of the crystals is a levo-rotatory quartz crystal, or one to produce a counter-clockwise rotational effect disposed ahead of the former, with the result that the second crystal neutralizes the rotation of the former, and that in the normal state mutual compensation of the anisotropy of the two crystals is produced. If, then, one of the two quartz crystals is excited, the penetrating luminous rays after their passage through the second quartz crystal will be influenced only by the action of the double refraction due to the oscillations, whereas the phenomenon of rotational refraction is eliminated. The automatic self-oscillation of the piezoelectric crystals operates to control the light which passes to the screen or film.

1,792,766. **Electric Light Relay Using Interferometer Principle.** F. SCHROTER. Feb. 17, 1931. A mirror is carried by a magnetic diaphragm which is electromagnetically actuated in accordance with sound variations for changing the path and phase-relationship of interfering light rays for correspondingly changing the effect of the light rays upon a recording element. The primary electric variations cause changes in the path of light in an interferometer arrangement of convenient kind, so that, according to the phase-differences thereby obtained, the amplitudes become added with positive or with negative signs. After combination of the light rays, there results, therefore, a light or dark record, or an intermediate value governed by the difference in path of the interfering luminous rays. The light relay is quantitative in its action. Differences in path are accomplished, for instance, by means of mirrors which are actuated or moved by electric or magnetic forces either directly or indirectly.

1,793,403. **Combination Disk and Photo-Cell Reproducer.** J. HURT. February 17, 1931. A photograph record having sound waves recorded thereon actuates a stylus which carries a mirror. The mirror reflects a beam of light from a light source to a light-sensitive cell for the reproduction of sound electrically from the record.

1,793,772. **Apparatus and Method for Localization of Sound on Screens.** W. BOUMA. February 24, 1931. Sound is reproduced from any one of a number

of loud speakers which are located behind the screen in different portions of the field of the picture. One of the conspicuous defects in present-day talking pictures is that during the reproduction of a picture on a screen concurrently with the sound reproduction consonant with the scene the sound reproducer does not cause the sound to originate at or near that portion of the projected scene or pictures from which in actuality the sound would originate during the filming of the picture. For instance, during the projection of a picture of a singing quartette when any of the singers is singing alone and may be at either end of the line of singers, present-day reproducers cast the sound only from given sources irrespective of the fact that the singer may be at an extreme corner of the projected scene with the result that the sound pictures have an unnatural and false impression.

It is the general purpose of this invention to provide a method and means for filming a scene and for reproducing the picture in accompaniment with the desired sounds and especially to provide for the reproduction of the sounds immediately at that portion of the screen contiguous to the agent in the picture from which the sound apparently originates. This is accomplished by providing on the film successive impressions between the frames of the pictures and in different positions laterally of the film arranged for emitting light through light slits in predetermined positions to light-sensitive cells which are independently connected in different relay circuits for successively cutting in different loud speakers located adjacent to different portions of the screen. The loud speakers are energized from the main photo-cell circuit but are automatically switched as the subjects in the picture occupy different positions in the projected scene.

1,793,956. **Channel Selection with Multiple Sound Track Film.** F. H. OWENS. February 24, 1931. A multiple-channel sound film is moved by a sprocket-driving device having mechanism attached thereto for shifting the sprocket to move the sound film into position where a selected sound channel travels adjacent a sound slit. As each channel is shifted into operative position with respect to the sound slit the sprocket is locked in such position against displacement.

1,794,664. **Frequency Division and Multiplication for Recording and Reproducing.** J. R. BALSLEY. March 3, 1931. The frequencies of the original sound-wave microphone current are divided before the recording thereof on film. There is thus produced a sound record in which the physical lengths of the individual opacity variations are increased relative to the light-slit by the number of times which the frequency of the original microphone current was stepped down, and in reproduction a corresponding increase in accuracy will be gained. In reproduction, the electrical current produced from the divided-frequency record is put through a frequency multiplier, properly tuned and balanced to match the frequency divider, which reproduces the original microphone current. The output of the frequency multiplier is then amplified and reproduced as sound waves in the usual manner.

1,795,442. **Portable Motion-Picture Screen.** A. L. RAYEN. March 10, 1931. A portable motion picture screen in which a box-like structure encloses a pair of hinged mounted folding arms which may be moved out of the box-like structure for supporting a roller-mounting for the screen which may be unrolled

and stretched taut with respect to the arms for providing a flat-surface screen for the exhibition of projected pictures.

1,795,490. **View Finder with Adjustable Field of View.** A. S. HOWELL. March 10, 1931. A simplified construction of view finder, the field of which may be varied quickly and conveniently for such purposes as defining the photographic fields of different photographic lenses with which the view finder may be used, whereby to facilitate the interchange of photographic lenses having different photographic fields on photographic cameras equipped with a view finder, and particularly with reference to motion picture cameras. The view finder consists of a cylindrical mask member angularly movable on its axis transverse to the focal axis of the view finder and provided with a plurality of mask openings of different sizes adapted to be selectively positioned in operative relation with the viewing device by the angular movement of the mask member.

1,795,751. **Copying from Variable Area Sound Record to Form Variable Density Record.** J. R. BALSLEY. March 10, 1931. The developed original film and the unexposed film on which the copy is to be made are run through the machine at exactly the same speed by moving the films by identical sprockets on the same shafts. A line of light is directed upon the variable area sound record portion of a film and a light-reactive element exposed to the light transmitted through the record. A variable density sound record is reproduced on a film corresponding to the sound record on the original film while the films are being moved at the same speed.

1,795,936. **Combined Loud Speaker and Screen.** LEE DE FOREST. March 10, 1931. A screen for the reproduction of sound pictures in which a loud speaker is built into the screen. The loud speaker or sound reproducer comprises a long-necked horn extending in the rear of the screen and terminating in a bell whose plane lies in the plane of the screen and at the top of the screen.

1,796,420. **Multiple Mirror Scanning Device.** F. W. ADSIT. March 17, 1931. A scanning device in which a rotatable drum is provided with a multiplicity of small mirrors for receiving light from successive portions of objects as the drum is rotated. The mirrors are arranged around the periphery of the drum in the form of a helix and have an inclined position relatively to a tangent drawn at the circumference of the drum whereby light, reflected by said mirrors, is moved both horizontally and vertically. A photo-cell is energized by the light reflected by the mirrors for modulating a control circuit.

1,796,931. **Electrooptical Transmission in Colors.** H. E. IVES. March 17, 1931. A television system for the transmission and reception of pictures in colors. At the transmitter a field of view is simultaneously scanned with a plurality of light beams having different wave-lengths, the beams being juxtaposed so that each beam scans substantially equal portions of the field of view and scans its proportionate share of the entire field of view in each scanning cycle. At the receiver the light is analyzed into different colors and successive elemental areas of a field of view illuminated by spots of light of the different colors.

1,796,970. **Change-Over for Picture and Sound Projecting Apparatus.** L. D. STRONG. March 17, 1931. Both pictures and sound are changed over from one reel to another on the adjacent machine by means of a single switch or one operation, whereby the continuity of the picture or projection will not be interfered with but will appear as a continuous movement without undue interruption of

either the picture or sound. The light is changed from one machine to another and the output circuits of the respective sound producing circuits on each machine simultaneously changed to connect the sound producing circuit on the second machine to the input of the sound reproducing amplifier.

1,797,149. **Sound Head with Removable Light Gate for Motion Picture Projectors.** E. M. JENSEN. March 17, 1931. A quickly removable light gate which may be moved into an operative or an inoperative position which will permit the film to be quickly and easily inserted or removed and which will further permit the surfaces over which the film passes to be readily cleaned when the light gate is lowered into the inoperative position. Light is projected through the sound record of a motion picture film and caused to fall upon a photoelectric cell to vary the conductivity of said cell, the light-controlling mechanism embodying a tubular light gate movable on an inclined trackway into and out of the path of the pencil of light which is passing through the sound record on the film.

1,796,359. **Optical Instrument for Altering Projected Screen Image.** A. S. CAMERON. Assigned to William J. Cameron. March 17, 1931. An image-projecting structure by which an image may be shifted and changed in color over a screen adjacent a chart. A stylus arm moves over the chart and is shifted with respect to the chart in a position corresponding to the movement of the image on the screen. The apparatus is utilized in analyzing the diagnosis of patients under treatment.

1,796,432. **Stereoscope Film Moving and Viewing Apparatus.** A. J. R. BARLATIER. March 17, 1931. A stereoscope device adapted to carry a strip of film having a series of stereoscopic views arranged in the form of a hand carrier through which the film may be inserted and removed. The carrier is provided with a pair of observing lenses adjacent to which the film is moved by a slidable engaging device adapted to shift the frames across the field of the observing lenses.

1,797,066. **Alternate Projection of Two Positive Films to Avoid Screen Flicker.** M. L. ZIMMER. March 17, 1931. The flicker in the projection of pictures is avoided by the projection on the screen of successive phased pictures. Two independent positives are provided on the same film with the pictures of a series on the film being alternately arranged. The frames are alternately projected and are focused at the same focal point on the screen, and the shutters are so mounted that the periods of transmission of light to the screen overlap, in order to relieve any tendency of flicker. Frame number one would be on one film, frame number two on the other, frame member three on the first film, four on the second, *etc.*, but the screen is at all times illuminated and a picture is on the screen before a previous picture leaves the same, the arrangement being such that one picture momentarily overlaps the other; therefore the illusion will not be accompanied by the disagreeable flicker and eye-strain commonly experienced.

1,797,202. **Objective for Large Working Aperture and Correction of Aberration.** A. WARMISHAM. March 17, 1931. An objective of the Petsval type in which the back component includes two asymmetrical convergent members presenting their more deeply curved surfaces toward the front component. The back component consists of a divergent member and two asymmetrical convergent members which present their more deeply curved surfaces toward the front component. The purpose of the lens system is to correct for the various aberrations throughout a useful field and provide a larger working aperture than hither-

to obtained. The residual zonal spherical aberration is so reduced as to secure an objective having relative aperture $f/1.5$ while maintaining a sufficiently good state of correction of the zonal spherical aberration to give definition comparable with that given by the conventional Petsval objective having about two-thirds of this effective diameter.

1,797,259. **Viewing Apparatus Combined with Scanning Disk for Securing Proper Framing.** R. L. DAVIS. Assigned to Westinghouse Electric & Manufacturing Co. March 24, 1931. A scanning disk is provided with spirally arranged apertures having a plurality of convolutions. There is a viewing assembly adjacent one portion of the scanning disk. A system of gears is provided for moving the viewing assembly radially of the disk. This movement of the viewing assembly which includes the lens system and the photoelectric cell corresponds to the proper framing of a motion picture projector as the object and photo-cell are brought precisely within the area covered by the movement of the apertured portion of the scanning disk.

1,797,274. **Shutter Mechanism for Motion Picture Camera.** O. A. ROSS. March 24, 1931. A shutter mechanism in which the time interval during which the film is stationarily positioned for exposure is comparatively long as compared to the time interval during which said film is being advanced by the shuttle mechanism, whereby the quantity of light employed for the illumination of sets when recording motion picture productions in studios may be reduced, or successful exterior exposures may be made under adverse light conditions. The film-advancing mechanism comprises two meshed gears, one of which rotates at twice the speed of the other. There is a film-advancing member pivotally supported independent of the gears, which member is arranged to engage and advance the film relatively to the photographic aperture. There are means operative by the high rotative speed gear member for effecting the engagement and advancement of the film by the film-advancing member during each revolution thereof. There are means operatively associated with the low rotative speed gear member arranged to annul the engagement of the film by the advancing member each alternate revolution of the high rotative speed gear member.

1,797,278. **Television System Eliminating Scanning of Frame Lines of Motion Picture Films.** T. A. SMITH. Assigned to Radio Corporation of America. March 24, 1931. Motion picture film is moved continuously at a uniform speed and the picture portion of each frame analyzed in such manner that the frame lines separating the successive portions of the film are omitted. The elimination of the scanning of the frame lines eliminates undesired interference and permits the reproduction of an accurate image. A scanning disk having apertures arranged in a spiral thereon is provided. The pitch of this spiral is selected equal to the width of a frame line on the motion picture film and only the actual picture is scanned as the film moves without scanning of the frame line.

1,797,286. **Stage Mounting for Producing Special Effects.** B. S. GLAGOLIN. March 24, 1931. Different portions of the stage for taking motion pictures can be moved at a different speed, one of these portions containing also the camera for taking pictures. This arrangement can be used to produce special effects by uncovering gradually or suddenly different portions of the stage setting so as to create an impression on the observer of the pictures, of a more intimate and personal contact with the scenery and action on the stage. The stage on which

the artists perform is circular in shape. There is a ring-shaped stage surrounding the circular stage. The ring-shaped stage and the circular stage are independently rotatable to permit filming in different arrangements.

1,797,544. **Projecting Images for Observation by Patient under Treatment.** A. S. CAMERON. Assigned to William J. Cameron. March 24, 1931. A projection apparatus for throwing an image upon a screen to be observed by a patient under treatment. The image may be caused to move upon the screen in an unlimited variety of directions in order to be observed by the patient in any position. The apparatus is known professionally as a "myoculator." A plurality of color plates are carried by an arm in such manner that the color plates may be shifted across the path of the light rays and in the path of a system of lenses for focusing the portion of the object on a screen in any desired position.

1,797,718. **Electric Contact Making and Breaking Device.** F. G. CREED AND A. ORLING. Assigned to Creed & Company, Ltd. March 24, 1931. A relay of high sensitivity which may be used for making and breaking an electrical circuit in response to control currents. The device includes a conductor of non-resilient material having a moist conducting surface and a metal conductor associated with actuating mechanism for moving the conductors into and out of contact. The moist, non-resilient conductor consists of a small pad of porous material mounted upon a support and moistened with a conducting liquid. The movable conductor consists of a length of stiff wire which is operated in conjunction with the moist conductor for controlling the making or breaking of an electrical circuit. The relay is connected in the input of an electron tube system.

1,797,778. **Electrostatic Device for Sound Reproduction.** C. KYLE. Assigned to United Reproducers Patents Corp. March 24, 1931. Loud speaker for sound reproduction in which two conductors having an interposed dielectric sheet are employed. The interposed dielectric sheet has a slight amount of conductivity for the rapid dissipation of static charges tending to remain residually in the dielectric. The loud speaker is intended for sound reproduction at large volume in the output circuit of the reproducing amplifier in any form of sound reproducing system.

1,798,118. **"Optiphone" for Detecting Presence of Optical Images by Blind Persons.** J. A. CLIFTON. Assigned one-third to Earl H. Holland and one-third to George W. Beckett. March 24, 1931. Apparatus which may be carried by a blind person and operative by optical effects for enabling the blind person to "hear" the presence or absence of images in any one of several directions. The apparatus includes a band which encircles the head of the wearer and carries light-sensitive cells in different positions. A switch is employed to selectively connect any one of the cells to an electron-tube circuit which in turn connects to a telephone worn by the blind person. A buzzer is selectively connected in circuit with any one of the light-sensitive cells and operates to control the telephone. Different images have different characteristic sounds to the blind person and enable the blind person to partially enjoy the effects of the sense of sight.

(Abstracts compiled by John B. Brady, Patent Attorney, Washington, D. C.)