ABSTRACTS OF RECENT U.S. PATENTS

1,796,725. **Focusing Finder.** O. A. Ross. March 17, 1931. An attachment for cameras whereby a motion picture photographer may, if desired, simultaneously photograph, focus, and observe the field being photographed, the delineation of the field or frame in the finder being substantially identical to the delineation of the frame being photographically impressed on the motion picture film at the photographing aperture in the camera. The photographer views a magnified field through a view finder section comprising a finder hood, viewing lens, finder lens bracket, lens mount and lens, and focuses sharply on that field. If the finder lens barrel indicates six feet, not only will the photographing lens be also sharply focused on the same field, but, in addition, the delineation of the field of the photographed field will be substantially the same as the delineation of the field seen on the viewing lens in the finder section.

A photographer may view the desired field or frame through the view finder section and adjust the finder lens barrel for sharpness of image and preferably simultaneously move the camera with respect to the tripod or camera mount until the field or frame seen in the view finder is the desired one, thereafter, or simultaneously, operating the camera to photographically record the scene of the field or frame on the motion picture film. This performance may be accomplished without referring to the distance numerals appearing on the finder barrel.

1,801,268. **Multiple Turntables for Aiding Disk Synchronization.** FRANK L. DYER. April 21, 1931. A plurality of phonograph disk record turntables are provided in independent geared relation to the driving motor. The gearing between one phonograph turntable and the motor provides for normal turntable speed. The gearing between another turntable and the motor provides for a slightly higher speed. A third gearing between another turntable and the motor provides for slightly lower speed. By providing all of the simultaneously operating records, an operator in the projection booth who suddenly finds a condition of non-synchronism existing between the picture and the sound may overcome this condition by at once throwing into position the sound pick-up arms to register with either the faster running sound record or the slower operating sound record, and therefore match the picture and sound without interruption of the program. The multiple arrangement of phonograph turntables also provides means for running a continuous program without interruption and providing a musical program between picture reels.

1,801,450. **Optical Printing System.** F. H. OWENS. April 21, 1931. A printer for printing positive film strips from a multiplicity of negative film strips. Provision is made for driving the negative and positive film strips simultaneously by arranging independent sprockets on the same drive shaft. One of the sprockets is adapted to move the strip of positive film. Other sprockets engage strips of negative film. A system of prisms and lenses is provided so that images from different portions of all of the negative strips may be directed upon the positive

strip for integrating upon the positive strip desired views obtained from the negative strips. The driving of all of the sprockets simultaneously from the same drive shaft insures synchronism in the printing process.

1,802,045. **Projector Adaptable for Motion and Still Pictures.** J. BOGOPOLSKY. April 21, 1931. A portable type of projecting machine which may be stopped in any position to project a still picture. The machine comprises a compartment containing a driving motor and a compartment at the front of the projector and above the motor compartment for containing a shutter and an intermittent film-driving means. Two compartments located side by side behind the shutter compartment are arranged to contain a light source and a resistance element. At the moment when the movement of the film ceases an anti-scintillating device becomes effective to filter the light in such manner as to avoid the transmission of heat to the film.

1,802,248. **Automatic Control Circuit for Projection Change-Over.** R. M. GEYER AND CHARLES M. SWEET. April 21, 1931. A control circuit to motion picture projectors for permitting the screening in sequence of film reels without perceptible interruption in the projection between successive reels of film, in which a pair of switches is automatically operated by a solenoid united with a metal plate which cuts off the light beams from the lamp houses when the solenoid is not actively energized, but which is clear of the path of light rays when the core of the solenoid is actuated.

A mechanism is coupled with a plurality of motion picture projectors, in which a movable contact arm controlling the circuit is maintained in a position for keeping open the circuit through one of the units controlling the projectors, and retained in such position by an edge of a film. The motor circuits and the light sources of each of the projecting machines are automatically controlled as the film in one projector nears the end of a reel to produce coöperative functioning of the adjacent projector in bringing about co-extensive operation of the machines without interruption.

1,802,480. **Projection Screen and Sound Reproducers.** H. W. ROGERS. April 28, 1931. Motion picture projection screen which carries a frame structure in the rear for the mounting of a multiplicity of sound reproducers. The sound reproducers may each be adjustably positioned on the frame structure in the rear of the screen and arranged to direct sound through the screen through flared bell structures constituting parts of the sound reproducers.

1,802,570. **Illuminated Stage Setting for Projection Screen.** J. W. OGLETREE. April 28, 1931. Screen for the reproduction of motion pictures wherein a stage setting is provided behind the screen and adjacent the sides thereof for illuminating the space adjacent the screen with light rays contrasting in color with that of the picture, the contrast between the picture and its background serving not only to reduce eye-strain but, by virtue of the blending between the light of the picture and that of the space in which it is situated, functions to create an impression of depth. The screen is mounted within a stage setting for receiving a picture of predetermined color tone. The background is diffused with a subdued colored light, the latter emanating from the back of the screen and being adapted to blend with the color tone of the picture to produce a softening effect between the picture and the immediate vicinity of the screen. Lights are so arranged as to be shielded from the direct vision of the audience and yet

produce that contrasting light effect which will relieve optical strain upon the observers.

1,802,595. **Multiple Sound Tracks for Obtaining Long Records on Normal Length Film.** LEE DEFOREST. Assignor to DeForest Phonofilm Corporation. April 28, 1931. A mechanism for reproducing sound from film where the film has a plurality of longitudinally extending sound records thereon. A light slit is provided in a block which is shiftable laterally of the film. The film is driven past the slit block successively in opposite directions and the slit block moved to align the same successively with each sound record on the film upon each reversal in direction of the film. In this way a sound program of extended length is obtained from a film record of normal length.

1,802,747. **Kerr Cell Employing a Plurality of Elements and Electrostatic Fields.** V. K. ZWORYKIN. Assigned to Westinghouse Electric & Manufacturing Company. April 28, 1931. A Kerr cell comprising a plurality of linear electrodes, interpositioned between the light source and a light-sensitive film. A sound modulating circuit has the output thereof connected to the electrodes of the Kerr cell and controls the operation of the Kerr cell for analyzing polarized light directed through the cell upon a light-sensitive film. The invention consists in subdividing each electrode of a Kerr cell into a plurality of electrode elements, and in so intercalating these elements that the incident light is subjected to a plurality of electrostatic fields during its travel therebetween instead of being subjected to but a single field as in Kerr cells that were known to the prior art. In addition, a linear source of light is so related with the Kerr cell that each portion of the light beam is subjected to a separate electrostatic field.

1,802,530. **Method and Device for Producing Color Films.** OTTO PILNY AND ALEX PILNY. April 28, 1931. Color film which is produced from two series of component color pictures arranged in close proximity on one film projected by means of a single source of light utilizing a mechanical separation of the beams, while avoiding any crossings of the path of the beams, to the front and back of a second film sensitized on both sides so that the two pictures coincide with each other. The first film carries closely adjacent pairs of correlated pictures through which parallel rays are projected, and separately and simultaneously focused to different optical reflecting systems and reflected upon opposite sensitized surfaces of a second film in registering positions of the same height as the pictures on the first film. Both films are then moved step by step the same distance in the same direction for the normal picture height. The second film is thus prepared from the two pictures carried by the first film.

1,802,802. **Gyroscopic Scanning Device for Vertical and Horizontal Scanning.** F. E. BEST. April 28, 1931. Scanning means which includes a high-speed rotary reflector having a relatively great gyroscopic action. The apparatus while in operation can be moved freely in any plane that does not involve a tilting of the axis of rotation of the rapidly rotating part, thereby permitting scanning operations in both vertical and horizontal planes.

1,802,803. **Device for Transmitting Vision Electrically.** F. E. BEST. April 28, 1931. Television system in which two rotatable disks are each provided with a plurality of slots which are adapted to reverse as the disks are rotated to progressively permit the passage of contiguous lines of light. One of the disks is illuminated in proportion to received electromagnetic impulses in close

proximity to the slots therein. The operation of a spark gap is observed through the slots in the disks. The image of an object is projected onto a photoelectric cell in the form of a plurality of contiguous lines of light of varying intensity and each line as it is projected on the cell will vary the conductivity of the cell thereby varying the electric current that will be transmitted through the cell and proportionately varying the strength of illuminating intensity of the spark between the electrodes of the receiving apparatus thereby producing in said receiving apparatus a line corresponding in intensity to the line of light on the cell.

1,803,087. **Safety Device for Regulating Film Loop and Preventing Fire Hazard.** T. T. ALLEN AND J. F. ADAMS. Assignors to Sentry Safety Control Corporation. April 28, 1931. Automatic control for motion picture projectors in which the size of the loop for the feeding of the film is maintained at a predetermined length. Where the film is not uniformly fed under the aperture plate by the sprockets which engage the perforations in the sides of the film, the loop which is maintained above the aperture plate is either greatly lengthened so as to "pile up" or the loop may be diminished until the film is torn or broken. A switch is provided including spring terminals and a cam normally adapted to force the terminals together. A curved plane is fixed on the shaft and extends adjacent on the outside of the loop. There is a finger fixed on the shaft and an actuator extending inside the loop and adapted to engage the finger if the film loop diminishes excessively. The switch is operated to close a circuit for obstructing the light rays and preventing fire hazard with respect to the film until the loop is restored to its normal size.

1,803,088. **Safety Shutter Control and Automatic Change-Over System.** T. T. ALLEN AND HUMBERT GODOY. Assigned to Sentry Safety Control Corporation. April 28, 1931. A shutter mechanism designed to close the aperture to prevent the projection of the film images; first, where it is desired to change the projection from one machine to another; and second, where the projection is faulty, caused by the breaking of the motor belt, the blowing of the motor fuse, the loss of the film loop, or the breaking of the film. The shutter of one projecting machine can be automatically closed and the shutter of an adjacent projecting machine opened under electrical control. In case two or more machines are used, after being properly focused, the first film reel may be mounted in one of the machines and the second film reel in another machine. The mechanism is designed so that by pressing a button, the projection of the first machine will be discontinued and the film of the second or succeeding machine projected simultaneously with the stopping of the first machine so that there will be no appreciable break in the projection. A pair of solenoids is arranged for operating an armature member adjacent to the shutter on each projection machine. A switch is provided for alternately energizing one of the solenoids and de-energizing the other solenoid to raise or lower the shutter.

1,803,133. **Scanning System for Facsimile Transmission.** R. H. RANGER. Assigned to Radio Corporation of America. April 28, 1931. A picture reproducing system for transmitting and receiving picture records, where the picture to be transmitted or received is scanned by moving the scanning system longitudinally of the picture record surface at a plurality of varying speeds. The picture surface is carried upon a cylindrical drum and claws are provided for gripping the picture surface and holding the same securely upon the drum.

The scanning mechanism is operated through a gear shift which controls the rate of movement of the scanner with respect to the picture.

1,803,278. **High-Frequency Control of a Kerr Cell.** T. W. CASE. Assigned to Case Research Laboratory, Inc. April 28, 1931. A sound modulating circuit is provided for operating upon a high-frequency oscillator and producing therefrom high-frequency current modulated in accordance with sound vibrations. The modulated energy is impressed upon a rectifying circuit and from the rectifying circuit the energy is supplied to a Kerr cell. The Kerr cell varies a beam of polarized light in accordance with the modulations impressed upon the carrier current for the production of a photographic record of light waves corresponding to sound waves. The variable light rays thus produced are directed upon a light-sensitive film for the recording of sound in accordance with the initial operation of the sound pick-up circuit.

1,803,313. **Film Guide for Projectors.** CARL BORNMANN. Assigned to Agfa Ansco Corporation. May 5, 1931. A film guide for projectors which consists of a metallic stamping having a rolled, horizontally extending upper edge and resilient fingers depending therefrom and adapted to engage the film adjacent its edges. The resilient fingers bear against the film and maintain the edges of the film flat against the film guide during the movement of the film past the exposure aperture.

1,803,346. **Electromagnetically Operated Light Gate for Recording Sound.** F. H. OWENS. May 5, 1931. A sound record is recorded on a film by an electromagnetic gate which is operated in accordance with the actuation of a sound pick-up circuit for permitting variable light to reach the sensitive film strip. The light gate is operated electromagnetically and admits light through a system of lenses to the light-sensitive film. The parts of the light gate consist of overlapping plates which are shifted vertically with respect to each other for controlling the passage of light upon the film strip.

1,803,403. **Sound-on-Film Attachment for Disk Type Phonographs.** F. H. OWENS. May 5, 1931. An attachment for disk type phonographs in which a frame carrying a pair of reels with a film strip reel thereon is adapted to be mounted within a phonograph cabinet and the reels driven from the phonograph drive shaft. The frame carries a light source and a light-sensitive element between which the film having a sound record thereon is moved. The light-sensitive element operates a sound reproducing circuit in accordance with the sound record on the film.

1,803,404. **Automatic Shutter Mechanism for Controlling Printing Light Intensity.** F. H. OWENS. May 5, 1931. A shutter mechanism is employed in a film printing apparatus, which shutter is controlled in accordance with the intensity of the transmitted light of the printer. As the film is moved past the shutter opening, the size of the shutter opening is varied in accordance with varying light intensities selected for the film. The operating means consists of a continuous band having undulations or cam faces formed thereon. The shutter is mechanically connected to a member which is actuated by the movement of the cam faces on the continuous band to open or close the shutter. The movement of the film controls the operation of the moving band for controlling the effect thereof upon the shutter for determining the light intensity to which the film is subjected.

1,803,572. **Cabinet Assembly for Portable Pictures and Sound Reproducer.** F. VON MADALER. May 5, 1931. A cabinet assembly for a portable motion picture and sound reproducing mechanism wherein a phonograph turntable is positively driven by a shaft and a film reeling device slippingly connected to the drive shaft. A second film reeling device is adapted to be connected to the drive shaft at will. There are film feeding devices disconnectably driven by the drive shaft. The mechanism is mounted within a cabinet having a horizontally extending shelf carrying a reflecting panel which is utilized for the reflection of the reproduced picture on a screen erected above the cabinet structure. The driving mechanism operates a ventilating system to maintain the apparatus within the cabinet cool during the simultaneous projection of pictures and the reproduction of sound from a sound record carried by the film. The apparatus is arranged so that the sound record may be reproduced without the accompaniment of the picture.

1,803,700. **Simultaneous Multiple Scanning and Transmission over Separate Channels.** F. GRAY. Assigned to Bell Telephone Laboratories, Inc. May 5, 1931. Scanning system for television wherein the scanning disk has apertures arranged in the form of a spiral of two convolutions, employed to project two beams of light simultaneously upon the field of view so that the field is scanned by two spots of light moving over different courses. Each of these beams is interrupted or modulated at a distinctive frequency. Light reflected from the field of view may be received upon a single photoelectric cell and the resulting variations impressed upon frequency selective means for separating the components of different constant frequency. The interrupting or modulating of the light beams is accomplished by providing a grating of closely spaced parallel rulings over each of the apertures of the scanning disk, the spacing of the lines being different for one convolution of the spiral than for the other. Separate stationary gratings are provided, one for each convolution of the spiral having, respectively, the same spacing of rulings as the apertures of the corresponding convolution of the spiral. The gratings are so designed as to have rulings varying in opaqueness from the center to the edge to produce variations in the light beam in a sinusoidal manner. A large number of beams may be employed and any suitable means used to direct and modulate the beams. The image currents produced as the result of scanning and comprising a plurality of modulated frequency components are separated by means of filters, demodulated, and transmitted over separate transmission lines, respectively.

1,804,170. **Method of Making Motion Picture Screens.** W. H. C. LASSEN. May 5, 1931. Screen for talking motion picture systems where a laminated screen is provided with perforations uniformly distributed over the surface thereof and through which the sound from loud speakers located behind the screen may be readily directed. The screen consists of a perforated fabric sheet having an adhesive dressing applied over the sheet in a manner to keep the perforations open with a layer of glass globules applied to the dressing extending into the perforations. The glass globules which extend over the surface of the perforated screen provide a reflecting surface for securing finer reproduction of the motion picture.

1,804,268. **Manipulating Attachment for Lens Focusing Mechanism of Projectors.** N. J. NORTHINGTON. May 5, 1931. Lens focusing mechanism

which includes a rack, a pinion, and an upwardly extending pinion shaft projecting through the lens housing. There is a worm wheel secured to the end of the pinion shaft and a manipulator shaft is provided with a worm thereon meshing with the worm on the pinion shaft so that motion may be imparted to the lens focusing mechanism from a position remote therefrom and without interfering with the operation of the motion picture projector.

1,804,289. **Sound Recording and Monitoring System.** L. A. TAYLOR. May 5, 1931. An apparatus for recording sound and at the same time actuating a monitoring circuit for indicating the quality and characteristic of the sound being recorded. The recording circuit includes a galvanometer with a mirror thereof for laterally focusing a beam of light from a light source in accordance with sound waves. The moving beam of light is directed upon a light-sensitive film. An optical system is provided for deriving a portion of the vibrated light beam and directing the said portion of the light beam upon a light-sensitive cell for operating the monitoring circuit.

1,804,295. **Mechanically Resonant Filter for Eliminating 60-Cycle Hum in Reproducing Sound.** DOW O. WHELAN. May 5, 1931. Circuit for eliminating hum of alternating-current supply in the sound reproducer of a sound motion picture system, where the hum arises from the alternating-current light source used to direct the beam of light through the sound record on the film. The incandescent lamp which is used as a light source in a sound motion picture reproducing system is ordinarily energized from the 60-cycle, alternating-current power supply used for lighting the theater. While a frequency of 60 cycles is too high to produce a visually perceptible flicker there is a variation in the reproduced sound due to the low-frequency characteristic of the light source. By this invention a mechanically resonant filter, having an armature tuned for movement in unison with the frequency of the light source, is provided in circuit with the sound reproducing system for eliminating the sound effects produced by the alternating current change in the incandescent light source.

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