ABSTRACTS OF RECENT U. S. PATENTS

Reissue 18,108. **Producing Silent Intervals on Sound Tracks.** LEE DE FOREST. Assigned to General Talking Pictures Corporation. June 23, 1931. Silent intervals may be produced on the photoelectric sound track of a sound-on-film positive and the sound track freed of any densities in the emulsion of the film that may produce ground noises by blackening the positive at all portions of the sound recording part of the film where silence is desired. The developed sound-on-film negative produces a sound track on a positive film and the two films are run through a printer where an auxiliary printing light produces a blackened interval on the positive film where silence is desired.

In order to blacken the positive film at appropriate intervals the negative or master film is provided with notches at those portions where a blackened positive is to be produced. These notches serve to control the operation of a switch which cuts on or off the auxiliary printing light to produce the silent portions of the positive film.

1,809,815. **Safety Device for Motion Picture Projecting Machines.** J. F. ADAMS. Assigned to Sentry Safety Control Corp. June 16, 1931. Safety cut-off and douser for protecting the film against ignition in the event that the driving motor on the projector should drop below a predetermined speed. A mercury switch is provided for interrupting the motor circuit when the speed falls below a predetermined value. A shutter is also electromagnetically actuated for obstructing the rays of light passing through the film when the speed falls below a safe value.

1,809,816. **Centrifugal Switch for Controlling Film Feeding Mechanism.** J. F. ADAMS AND THOMAS T. ALLEN. Assigned to Sentry Safety Control Corp. June 16, 1931. The film feeding mechanism is controlled by means of a centrifugal switch. The centrifugal switch has contactors which, when the film feeding mechanism and switch are operated at a predetermined speed, are held outward centrifugally. However, when the film feeding mechanism and switch fall below the required speed, the contactors are swung inward and make contact with the contact rings which break the motor circuit, and stop and intercept the light rays upon the film. By means of the centrifugal switch the proper filming may be controlled.

1,809,817. **Safety Unit for Motion Picture Projectors.** THOMAS T. ALLEN AND JOHN F. ADAMS. Assigned to Sentry Safety Control Corp. June 16, 1931. A safety switch for motion picture projectors which operates if the film fails to move at or about a certain speed through the path of the rays of light emanating from the projection lamp to cut off the light rays and bring the projector to a stop. A unit is provided for stopping the projecting mechanism and intercepting the rays of light passing through the film upon the occurrence of any incident or accident which might cause the film to ignite. The safety device includes an electromagnet, a relay system, and a centrifugal switch electrically connected with the motor circuit and arranged to control a shutter mechanism for insuring

the safety control of the projector in the event of an accident giving rise to fire hazard.

1,810,002. **Film Marking Device.** JOHN ARNOLD. Assigned to Metro-Goldwyn-Mayer Corp. June 16, 1931. An auxiliary shutter is mounted upon a motion picture camera and operated by an electromagnet for exposing the film at selected time intervals with light for marking the film at any given position. The arrangement of the auxiliary shutter and electromagnetic actuator is very compact, for placing a light spot on the film to form an identification means for that portion of the film after development.

1,810,062. **Wax Record Synchronized by Timing Strip on Film.** E. R. TAYLOR. June 16, 1931. A wax record type of phonograph is used in coöperation with a motion picture projecting machine and synchronized in operation by a timing strip which runs in synchronism with the picture film. The timing strip carries contact members at predetermined intervals adapted to close a circuit to an electromagnetic actuator for engaging or disengaging the stylus with the sound record in timed relation to the movement of the picture film.

1,810,168. **Motion Picture Screen Employing Embedded Glass Cylinders.** J. A. GRAY. June 16, 1931. A covering layer of solid glass cylinders is imbedded in and applied to an adhesive coating on a fabric backing, which forms the motion picture screen. The solid glass cylinders are approximately $^1/_{64}$ of an inch in diameter and about $^1/_{16}$ of an inch long. These glass cylinders constitute the facing of the screen, lying in all sorts of varying flat-wise positions upon the fabric, and the light thrown against the face of the screen is condensed in the usual manner and reflected therefrom at the different angles of both the end walls and the circular walls of the cylinders. The end walls of the cylinders face other adjacent cylinders at all sorts of varying angles and there will be an extreme variation, both of the angles of the rays of reflection and of the angles of the rays of refraction in rays passing from one cylinder to another cylinder and being then reflected and refracted. Since the light is reflected and refracted at every conceivable angle, the field of illumination is materially spread beyond the sides of the screen.

1,810,169. **Backing for Motion Picture Screen.** J. A. GRAY. June 16, 1931. A projection screen for talking motion pictures where a porous backing member is provided for the free passage of sound from a sound reproducer in the rear of the screen through the screen. The threads of the backing member are coated with a pigment compound and then a layer of small cylindrical glass particles deposited over the compound. The glass cylinders serve to increase the lateral diffusion while permitting the free passage of sound through the screen.

1,810,188. **Television System.** T. A. SMITH. Assigned to Radio Corporation of America. June 16, 1931. Transmitting system for televising motion pictures, where the number of complete television images to be transmitted per second is different from the number of frames on the transmitted film which normally pass the projector aperture or scanning device in the same period of time. The motion picture film is, in effect, transmitted over a television transmitter at a speed lower than that at which it was originally made to be run, while, at the same time, the sounds accompanying the film may be transmitted at the proper speed for which it was originally produced. The scanner is operated in conjunction with a shutter mechanism by which a motion picture film may be moved at a predeter-

mined constant speed relative to a predetermined point and a smaller number of picture frames of the motion picture film scanned than the number of picture frames which pass before the predetermined point during a unit time period.

1,810,200. **Printing Machine for Colored Films.** P. BROSSE. Assigned to Kislyn Corporation. June 16, 1931. A projection printing machine for reproducing color prints on film according to the Berthon process. Essentially, the apparatus comprises a conventional projection printing machine which is provided with two passing devices whereof the mechanisms have a reversed action with respect to each other; in the one the original film is passed downward; in the other the copy is passed upward. Between these mechanisms is located the optical system by means of which the original film is projected on the virgin film by means of a light source illuminating the original film.

1,810,234. **System for Optically Recording Phonograph Records.** Assigned to Radio Corporation of America. June 16, 1931. A diaphragm is arranged to be moved in accordance with sound vibrations, and is linked to variably tilt a reflecting mirror in accordance with variations in the amplitude of the sound vibrations. The reflected light is directed toward a rotatably mounted light-sensitive disk by which a trace may be made on the light-sensitive disk. The light-sensitive disk is mounted on a carriage adjustable toward or away from the movable mirror. The disk is rotated by a gear system which meshes with teeth formed in the peripheral edge of the rotatable carrier for the disk.

1,810,324. **Multiple Channel Sound Reproducing Apparatus.** F. H. OWENS. Assigned to Owens Development Corp. June 16, 1931. A multiple channel sound film is employed wherein one channel contains a sound record including sound within a particular range of frequencies, while the other channel contains sounds within a different range of frequencies. Separate photoelectric cells with control circuits connected thereto are aligned with the different sound channels and connected to a sound reproducer circuit. A shutter mechanism containing apertures adapted to be aligned with either of the sound channels and the associated photoelectric cell is arranged adjacent the film and is driven by a solenoid which is energized from a switch automatically actuated by an arm engageable with notches cut at predetermined points along the edge of the film. The notches are so arranged along the film that the shutter mechanism may be shifted from one position to another to select the order of reproduction on the different sound films.

1,810,346. **Motion Picture Screen for Stereoscopic Effect.** E. M. CRAWFORD. June 16, 1931. Motion picture screen formed of sections which are adjustable along a transverse axis into different planes of rotation for the reproduction of a picture which will have a stereoscopic appearance. The different sections of the screen are adjustable transversely with respect to a central rotatable shaft which will provide different angularly disposed display surfaces for the picture. As these surfaces are rotated at a rate of 16 rotations or more per second the illusory effect of two visible screens, one behind the other, will be created and the projected pictures will be seen on both screens, thus giving a depth, or stereoscopic effect.

1,810,348. **Douser Control Mechanism for Motion Picture Projectors.** J. T. FEWKES. Assigned to Sentry Safety Control Corporation. June 16, 1931. An electromagnetic actuating device which normally holds a shutter out of the

light-obstructing position when the electromagnetic device is energized during the normal operation of the projection machine. However, in case of defective filming, such as breaking or clogging of the film, the electromagnetic actuator acts to automatically shut off the passage of light rays and to open the circuit of the driving motor. After correction of the defect, the douser is automatically re-set in the safety position for a successive operation.

1,810,605. **Modulating Light Beam by Variation of Air Density Caused by Sound Waves.** H. P. HOLLNAGEL. Assigned to General Electric Company. June 16, 1931. A beam of light is focused to pass through a point of concentration. Sound waves are directed upon the beam of light at the point of concentration thereof for modulating the light rays. The light rays may be focused upon a film and modulated in accordance with the impression of sound waves at the point of concentration of the light beam. In order to concentrate the sound waves a conical shaped member is arranged to lead the sound waves to the small open end, and at the focal point of the light beam where the density of the air is changed to produce corresponding variations in the refraction of the light beam at that point.

1,810,703. **Blue Color Filter for Kerr Cell Employing Nitrobenzol.** W. GALLAHAN. Assigned to Westinghouse Electric and Manufacturing Company. June 16, 1931. A Kerr cell utilizing nitrobenzol for its dielectric is employed to control the passage of light to the light-sensitive film during the recording process, and a color filter transparent to blue light is interposed in the path of the light rays. The color filter, which is transparent to blue light, compensates for the yellow color of the nitrobenzol. The nitrobenzol has a natural yellow color which tends to increase the blurring effect of yellow light on the film. However, with a color filter transparent to blue light, such as a piece of gelatin dyed blue by means of aniline dye, this blurring effect is counteracted.

1,810,705. **Thermal Sound Recording System.** E. H. HANSEN. June 16, 1931. Recording apparatus for impressing sound on wax records where the recording head functions with a preformed disk for engraving a sound record in the disk by a thermal process. The recording stylus is electrically heated for thermally cutting a record in the disk in accordance with sound variations.

1,811,365. **Roller Support for Traveling Films.** F. H. OWENS. Assigned to Owens Development Corporation. June 23, 1931. A sound and picture film is guided over a fixed arbor which has rotatable sleeves journaled thereon for providing a support for the film during the passage of the film over the arbor. The rotatable sleeves extend toward each other along the arbor and are separated by a predetermined gap. An aperture extends diametrically through the arbor in the gap formed between the ends of the sleeves, and provides a light passage for the light rays which pass through the sound channel on the film for actuating a photoelectric cell aligned with the aperture through the arbor.

1,811,495. **Multiple Image Camera.** H. N. COX. Assigned to Cox Multi-Color Photo Company. June 23, 1931. A lens system wherein multiple-image work may be substituted in a camera for the usual single-image lens and when so substituted is capable of affording a plurality of images in which aberration due to parallax as well as to the optical properties of the lenses is not greater than the aberration which in the single-image system is due solely to the optical properties of the lens. The multiple-image lens projects the light upon a film within the

area covered by the single-image lens, providing multiple images of equal angle of view. The multiple-image lens system includes a plurality of identical lens units, and a fixed aperture symmetrically spaced about an axis, the focal length of the lenses being substantially $5/8n \times w$, in which n equals the numerical aperture of the lens units of the multiple-image system, and w equals the width of the film area.

1,812,068. **Footage Indicator for Motion Picture Cameras.** A. F. VICTOR. June 30, 1931. Scale for indicating the amount of unused film remaining on the reels of a motion picture camera. A scale is provided which contacts with the film reel and shifts in accordance with the delivery of the film from the reel to render visible calibrations on the scale which indicate the amount of unused film still on the reel.

1,812,212. **Fire Shutter for Motion Picture Projector.** W. H. MEYER. June 30, 1931. A fire shutter for motion picture projectors in which the shutter is perforated over its entire area. The perforations in the center of the fire shutter are smaller than the surrounding perforations and graduate in size as they extend outward from the center of the fire shutter. This form of fire shutter is particularly adapted for home type motion picture machines. The shutter is automatically positioned in the path of light rays between the lamp and the film when the projector is stopped and positioned away from the path of light rays when the projector is operated and the film is in motion.

1,812,303. **Elongated Light-Sensitive Element for Reproducing Sound.** F. H. OWENS. Assigned to Owens Development Corporation. June 30, 1931. An elongated light-sensitive element is used for translating modulated light rays into electrical impulses. The light rays are spread during their passage to the light-sensitive element so that the light rays will enter the element over substantially its entire length, thus producing a maximum volume of reproduced sound. An elongated housing is provided for the light-sensitive element which provides for the reflection of light rays to secure maximum illumination of the light-sensitive element.

1,812,402. **Electrooptical Transmission System.** F. GRAY. Assigned to Bell Telephone Laboratories, Inc. June 30, 1931. An apparatus for producing television images, comprising a spirally arranged row of primary sources of light, such as electric lamps, attached to a revolving disk near the periphery thereof, and adapted to cross the field of view in succession to build up an image. Each lamp is connected to a circuit including a winding attached to the disk through which the lamp is inductively energized, while passing across the field of view, by a source of image current having variations corresponding to the tone values of successively scanned elemental areas of a field of view. The image current may be a current of varying amplitude which is supplied directly to the lamps through an inductive coupling.

1,812,405. **Multiple Channel Electrooptical Transmission System.** H. E. IVES. Assigned to Bell Telephone Laboratories, Inc. June 30, 1931. This invention provides for splitting the total scanning frequency band of the photoelectric signal current into a number of narrower frequency bands or sections by means of filters or the like, so that the different sections may be segregated for any purpose, such as transmission over different circuits. The low energy gaps between the groups of frequency components permit the composite current re-

sulting from scanning to be so divided without interfering with essential frequencies. When the narrow or sub-groups are transmitted over separate channels or circuits, respectively, each circuit may have transmission characteristics suitable for the transmission of one of the sections of the photoelectric current, the splitting being made in the above-mentioned gaps; or each segregated section or band of frequencies so split may be transposed by combination, respectively, with suitable currents of different constant frequencies, to the same or different part of the frequency spectrum for transmission over different circuits having similar or suitable characteristics, thus permitting the use of comparatively low-grade circuits or circuits having a comparatively limited frequency range. The different sections, after being transmitted, may be restored to their original frequency position; thereby producing a signal current corresponding to the original photoelectric current.

1,812,763. **Photoelectric Cell Bridge for Measuring Light Intensity.** W. E. STORY, JR. Assigned to General Electric Company. June 30, 1931. The intensity of light from two sources may be compared by placing a photoelectric device in each of two arms of a Wheatstone bridge; and the illumination from any lamp may be compared with that from a standard lamp in such a way as to avoid the visual comparison of illumination. The photoelectric cells which are exposed to the sources of light are employed to accurately change the resistance of the Wheatstone bridge circuit for operating a calibrated indicator.

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