ABSTRACTS OF RECENT U.S. PATENTS

The views of the readers of the JOURNAL *relative to the usefulness to them of the patent abstracts regularly published in the* JOURNAL *will be appreciated. Favorable views are of particular interest. In the absence of a substantial body of opinion to the effect that these patent abstracts are desired by the membership, their early discontinuance may be considered.*

1,821,930. **Film Feeding Mechanism.** M. COUADE. Sept. 8, 1931. A film feeding mechanism for projectors in which a claw engages the perforations in the film and intermittently moves the film in accordance with the operation of a cam mechanism which imparts angular movement to the claw. Adjustments may be made for determining the length of stroke of the claw by adjusting the eccentricity of the driving cam mechanism which engages the claw.

1,821,946. **Film Feeding Mechanism.** F. H. OWENS. Sept. 8, 1931. A sound and motion picture apparatus including mechanism for intermittently moving the picture films in front of the projection lens system while continually moving the sound record portion. The shutter for the light beam has a peripheral groove thereon for defining a belt wheel which is engaged by the drive belt. A manual adjusting means is provided for properly positioning the shutter. There is a lost motion connection between the film moving mechanism and the parts of shutter by which the shutter may be selectively adjusted under manual control before being operated under automatic control.

1,822,057. **Composite Photographic Sound Records.** F. H. OWENS. Sept. 8, 1931. The method of making a composite photograph sound record from different sources of sound such as a song with orchestra accompaniment and with the addition of some special instrumental features such as bells and the like wherein a plurality of photographic sound records are synchronously converted into electric impulses. These impulses are received for modulating the intensity of a single recording lamp. The modulated light rays from the lamp are photographed upon the sensitized film. By this process it is possible to produce a sound record by selecting desirable portions of previous sound records and thereby construct a program of highly entertaining qualities.

1,822,183. **Light Slit for Recording and Reproducing.** D. A. Whitson. Assigned to Whitson Photophone Corp. Sept. 8, 1931. A light slot for a sound recording and reproducing system in which a guide block is disposed adjacent the film. The guide block has a wide slot and a communicating narrow slot. The sound record is passed over the wide slot. There is a lens in the bottom of the wide slot and in contact with the sides and bottom of the slot for focusing radiations to pass through the slots on the strip. The purpose of the lens slot is to concentrate the light at maximum intensity upon the film at the same time that protection of the slot against the accumulation of dust or foreign matter is effected.

1,822,350. **Arrangement of Perforations in Cinematographic Films.** J. H. JARNIER. Sept. 8, 1931. A motion picture film which is perforated laterally of the picture frames instead of in two rows on opposite sides of the picture frames.

Claws are used to shift the picture frames intermittently before the projector. The structure of the film is such as to increase the resistance of the film against tearing at the lateral lines of perforations. Rectangular perforations are provided in the transverse spaces between the images wherein the ratio of the number (N) of transverse perforations to the width (L) of the film having a specific resistance to rupture by traction λ is determined by the formula:

$$N = \frac{L\lambda}{p - a\lambda}$$

in which a is the width of the perforations, p the resistance to rupture for the width a in such a way that the resistance to tearing of the line of perforations engaged is the same as the resistance to rupture by traction of the spaces separating them, this resistance being the maximum.

1,822,528. **Moving Lens Cinematograph Machine.** W. E. JOHN. Sept. 8, 1931. A motion picture camera or projector having a continuously moving film and a series of loose lens carriers moving with the film. The loose lens carriers move through a closed circuit including a straight guide in which they are exposed, and curved guides, one at each end of the straight guide; the circuit between the curved guides being completed by a driving and conveying member in the form of an internally toothed and pocketed wheel. The separate lens members are brought into alignment with the optical path through the camera by driving means connected with the lens carrier. The lens carriers slide longitudinally around the guide which defines the path of movement for each of the lens members.

1,822,551. **Lens Shifting Mechanism for Projecting Machines.** A. TONDREAU. Assigned to Warner Bros. Pictures, Inc. Sept. 8, 1931. A system of lenses which may be shifted in a projection machine to enable an instant change of magnification on the projection screen without loss of focus. An attachment is provided carrying lenses which may be first set in focus and which may be operated to bring either one lens of a certain magnification or another lens of a different magnification into the optical path. The lens carrier is provided with individual supports for the different lens members, allowing independent longitudinal adjustment of the different lens carriers.

1,822,865. **Glow Discharge Tube for Recording.** T. W. CASE. Sept. 8, 1931. A glow discharge tube for recording variations in light intensity upon film. A bulb is provided for enclosing a non-thermionic anode and a cathode. An atmosphere of helium is provided within the bulb at such a pressure that a concentrated glow is provided about the negative electrode with a voltage not substantially greater than 400 volts d-c. across the electrodes. The cathode has a photoelectrically activated coating comprising barium actuated for electron emission by the said glow concentrated about the cathode. The device is designed to produce response of the glow in terms of light emission according to variations of electrical impulses produced in a sound control circuit.

1,822,932. **Combination Recording and Reproducing Stylus Head.** M. H. LOUGHRIDGE. Sept. 15, 1931. A stylus head is arranged to support both a recording and a reproducing stylus with respect to a wax record of a phonograph. The stylus head may be shifted to bring either the recording or reproducing stylus into engagement with the phonograph record. A switching mechanism is provided for controlling the connection of the styluses to an amplifying system.

When the reproducing stylus engages the sound record, the input circuit of the amplifier is connected with the stylus. When the recording stylus is placed in engagement with the sound record, the magnetic windings thereof are connected with the output circuit of the amplifier for cutting a groove in the record in accordance with the sound vibrations impressed upon the input circuit of the amplifier.

1,823,243. **Method and Apparatus for Lapping Color Film Embossing Rollers.** O. WHITTEL. Assigned to Eastman Kodak Co. Sept. 15, 1931. A method of lapping lenticular film embossing rollers which comprises providing a cylinder with a plurality of fine guide lines, turning the cylinder, and lapping the cylinder with a plurality of wires, a fine lapping compound being used on the cylinder. The embossing roller is used for operation upon color motion picture films. The lenticular areas or elements formed in the film are extremely minute as the distance across these elements may be from 0.0015 to 0.002 of an inch.

1,823,245. **Film Winding Device.** O. WITTEL. Assigned to Eastman Kodak Co. Sept. 15, 1931. Winding device for motion picture film in which a reel is provided with a pair of concentric hub members. One hub member is slidably carried by a flange disposed in one side thereof. The two hub members are separated by sliding the flange on one hub. The structure of the film winding device is such that the film may be drawn from an inner convolution of a supply reel and wound on an outer convolution of a take-up reel. The construction of the reel is such that the film is properly aligned on the reel without rewinding.

1,823,246. **Method of Tinting Film for Use in Sound Reproduction.** A. A. YOUNG. Sept. 15, 1931. A method of tinting the picture areas of a photograph film in which the sound record portion is preserved untinted while preventing shrinkage of the film by applying to the picture areas of the film a dye dissolved in a solution comprising a solvent for the film and the dye and a non-solvent for the film which has the property of reducing the rate of evaporation of the solvent whereby the tendency of the film to buckle is eliminated. The dye, which is applied to the picture areas of the film, is dissolved in a solution containing from 5 to 10 per cent of acetone, from 70 to 75 per cent methyl alcohol, and the remainder triacetin.

1,823,349. **Producing Fade-in and Fade-out of Photographic Sound Record.** S. C. CHAPMAN. Assigned to Electrical Research Products, Inc. Sept. 15, 1931. The sound record is chemically treated for reducing the end portions of the sound record progressively varying lengthwise of the film. The reproduced sound will thus gradually increase in volume from silence to the normal volume of the record, vary normally with the record till near the end when the volume of the sound will gradually diminish to silence.

1,823,355. **Telescope Framing Device.** L. S. FRAPPIER AND E. BOECKING. Assigned to International Projector Corp. Sept. 15, 1931. Projecting machine for photographic sound records wherein a microscope is supported in the path of a scanning ray in such position that the ray can be observed while adjustments are being made to secure the proper characteristics thereof. A prism is positioned in the path of the light rays to deflect a portion of the light at right angles into the microscope in order that the sound record may be analyzed.

1,823,400. **Photographic Film Copying Machine.** L. HORST. Assigned to Sirius Kleuren-Film Maatschappil, of Bosch en Duin, Netherlands. Sept. 15,

1931. A machine for copying two color films and more particularly a machine of this kind in which the pictures are transferred from one film to the other by means of mirrors and objectives provided in duplicate. Two sources of light are provided, each of which is separately regulable, for timing the degree of copying of the individual part pictures.

1,823,462. **Photographic Camera.** K. MORSBACH. Assigned to Siemens & Halske, Aktiengesellschaft. Sept. 15, 1931. The film refill which is supplied for the camera is carried by an interchangeable cassette which coöperatively engages a film guide channel located in the interior of the camera behind the objective lens. There is a guide plate carrying the window for the image, permanently located behind the objective and in its focus. There is a pressure plate independently mounted on the cassette. When the camera is refilled, any differences in the focal lengths of the objectives of different cameras are compensated by the pressure plate and the guide plate so that equal operation of cameras which are not uniform is obtainable.

1,823,737. **Sound-on-Disk Motion Picture Projector.** CHARLES L. HEISLER. Assigned to General Electric Co. Sept. 15, 1931. A motion picture projector which includes a projector housing mounted adjacent a phonograph turntable. The driving motor which operates the projector also drives the phonograph turntable so that the film and the record may be operated in synchronism. The arm which carries the phonograph pick-up is pivoted adjacent one side of the record table and permits the phonograph pick-up to be moved over the area of the revolving record.

1,824,294. **Sound and Picture Film Matching Means.** FREEMAN H. OWENS. Assigned to Owens Development Corp. Sept. 22, 1931. A method which permits the accurate repair or splicing of separate film strips, one of which carries the picture record and the other of which carries the sound record to maintain synchronism between the picture and the sound wherein an insertable film section is provided attachable to the broken ends of the film. The insert is provided with a sound record and images adjacent the sound record, the images being partial duplicates of the images on the picture film. The splicer finds it very easy and convenient to judge accurately the length of the insert by simply matching the two films by observing the partial duplicates of the images on the insert and fitting the sound strip in to match the sound on the film. That is to say, a guide is provided on the insertable sound strip so that the splicer is advised accurately as to where this sound should occur on the sound film in order to match accurately the images on the picture film.

1,824,417. **Treating Sound Records Produced by Splicing.** A. T. TAYLOR. Assigned to Metro-Goldwyn-Mayer Corp. Sept. 22, 1931. The method of splicing a film carrying a sound record to prevent audible clicks and foreign noises at the splice marks as the film passes the light path. The ends of the broken film are cemented and then a patch in the form of a half-cycle sine wave cemented over the adjoining ends of the sound record. This sine wave patch has a frequency below normal audibility and an amplitude equivalent to the width of the sound record so that there is no extraneous sound created as the splice passes the sound reproducing aperture.

1,824,446. **Producing Motion Pictures in Color.** E. L. PEARSON. Sept. 22, 1931. A projection screen is arranged for rotative movement in timed relation to

the rotation of a color filter at the projection machine. The projector is arranged to project successively images through the different colored filters upon the moving projection screen from which the picture may be viewed and through which the images are produced. By shifting the relative positions of the projector and the projection screen to project successively the images upon the portions of the projection screen corresponding to the particular filters upon which the images are produced, an effect upon the eye of colored motion pictures closely portraying in color and motion real animated objects is produced.

1,824,709. **Camera for Taking Cinematographic Pictures.** A. L. V. C. DEBRIE. Sept. 22, 1931. View taking apparatus comprising two parts, namely, a front part containing the film driving device, the shutter, and the optical arrangement and a rear removable part which can be secured instantaneously to the front part and which contains a feeding storing box wherein the unimpressed film is disposed together with the film guiding devices, the transmission gear, and a second storing box into which the impressed film is wound up. The latter box can be the same as the feeding box or else both boxes can be made separate. The operator can thus be provided with several rear parts ready for use which he may secure to the front part of the apparatus according to the requirements. The result thereof is, besides the advantage already mentioned, a saving of time which is of great interest in the case where the taking of the complete scene which is to be cinematographed requires a length of film greater than what can be contained in one single storing box.

1,824,731. **Picture Transmitting System.** D. M. MOORE. Assigned to General Electric Co. Sept. 22, 1931. A picture receiving system in which the light is modulated in accordance with the shading of the successive elemental areas of the picture transmitted. A screen is provided and there are a plurality of rotatably mounted mirrors arranged to reflect successively the modulated light to produce a trace on the screen. The mirrors are rotated continuously in one direction at different speeds with a lens system arranged between the mirrors. The mirrors are each mounted on the shaft of the associated driving means in such manner that the mirrors are inclined at an angle to the axis of the driving shaft so that rotation of each of the mirrors produces a scanning operation over the area of the receiving screen.

1,825,078. **Incandescent Electric Lamp for Projection Apparatus.** J. MARETTE. Assigned to Pathé Cinema Anciens Établissements Pathé Fréres. Sept. 29, 1931. A glow lamp is directly centered in the optical path of a projection machine by means of a ring member which is secured over the base of the lamp and serves to center the lamp accurately in its support for accurately directing the maximum amount of light through the projection path.

1,825,121. **Lamp Holder.** F. H. OWENS. Assigned to Owens Development Corp. Sept. 29, 1931. A plurality of separate lamps are mounted on a carrier which may be laterally shifted to move any one of the lamps successively into a predetermined operative position. There are stops provided on the lamp supporting base to limit the movement of the lamps to selected positions. The lamp holder may be moved through a shaft member to the outside of a lamp housing.

1,825,122. **Objective for Color Photography.** A. OSWALD. Assigned to Keller Dorian Colorfilm Corp. Sept. 29, 1931. An objective lens system for color photography employing films having a goffered base wherein the lens system is

made up of a plurality of different elements; a diaphragm and a collimator film. The several elements of the optical system are so arranged that the pupil of emergence of the objective is in the anterior focal plane of the collimator lens, the aberrations introduced by the collimator lens being corrected by compensating aberrations introduced into said objective.

The objective is anastigmatic and is constituted by the three spaced elements and by a collimating lens located in the vicinity of the focal plane of the objective. The objective of this invention follows Petzval's law—

$$-P = \Sigma \frac{\phi}{\eta}$$

and in calculating these objectives in view of increasing the sharpness of the marginal images, P is left with a negative value suited to the extent of the field to be represented; when calculating an objective of this sort intended to be provided with a collimating lens, the residual value ascribed to P will therefore have to be increased by varying the quantity $\phi\eta$.

1,825,142. **Motion Picture Film Magazine.** W. A. BRUNO. Assigned to Clarence W. Fuller. Sept. 29, 1931. A protective housing for films wherein the film is supported for avoiding breakage or other injuries. A plurality of film carrying reels of considerable diameter are provided so that the film may be stored in the magazine, without sharp bends. The reels are constructed to engage the film near its marginal edges only, the cylindrical surfaces of the reels being concave or otherwise centrally disposed to prevent contact thereof with the central portions of the film. Power means are provided for driving the reels for storing the film in the magazine while preventing scratching or other abrasion to the picture frames on the film.

1,825,253. **Synchronous Camera Mechanism.** A. F. VICTOR. Sept. 29, 1931. A camera having means for controlling and synchronizing the motion and arresting the movement of the feeding devices with respect to the shutter. A cam cooperating with an abutting arm is provided in association with the rotatable shutter by which the shutter may be brought to rest by moving the arm. By withdrawing the arm from the path of the cam the shutter may be rotated under control of the drive mechanism. The movement of the shutter with the film feeding devices is synchronized. The shutter is provided with additional devices that coöperate with control mechanism so that when the latter is released to return to normal, the stoppage of the film is momentarily postponed until the shutter is in position in front of the exposure aperture, whereupon the movement of all mechanism is arrested. This is accomplished in such manner that it positively insures the proper positioning of the shutter in front of the aperture at the moment the movement of the film ceases and the stoppage is made without jar to the camera.

1,825,254. **Intermittent Feed for Motion Picture Apparatus.** A. F. VICTOR. Sept. 29, 1931. A mechanism for intermittently feeding a film through a camera or projection machine which includes a shuttle that is reciprocated by a continuously rotatable cam. The shuttle is hinged upon the end portions of lever arms that are pivotally mounted upon the housing of the camera or projector. Means are provided for adjusting the pivoted ends of the arms toward each other in such manner that any noticeable wear between the cam and the parts engaged

thereby may be taken up by means of a simple adjusting structure. The fulcrums of the lever arms are supported in a "floating" pivot because the pivotal members are not actually secured to the camera or projector but are carried upon suitable rocker-arms which themselves are pivoted on the support or housing. The operation of these rocker arms is similar to the action of a cam or cams engaged with the lever arms.

1,825,340. **Electrooptical Cell.** N. DEISCH. Sept. 29, 1931. A Kerr cell is used for electrically modulating a beam of light. One electrode of the Kerr cell comprises a frame having an opening comprising the active space thereof and a plurality of flexible ribbon-like division members dividing the opening into a plurality of light passages, the flexible ribbon-like members being secured to said frame and held taut across said opening. Electrostatic stresses impressed on the cell operate to modify the light passing through the divisions of the cell.

1,825,529. **Sound Pipe Reproduction from Photographic Films.** R. KOLLER. Sept. 29, 1931. A motion picture film is combined with an air control band which moves synchronously with the motion picture film. The air control band moves over a tracker board for controlling the supply of air to various sound pipes for the reproduction of sound appropriate to the pictures. Synchronization of the sound with the pictures is obtained by virtue of the interconnection of the moving band with the picture film. Various forms of pipe organ valves may be operated by allowing the air to pass through predetermined apertures in the moving band.

1,825,486. **Scanning Disk.** A. O. TATE. Sept. 29, 1931. The apertures in a scanning disk are arranged in reverse spirals, one of the spirals beginning at the outer edge of an image and ending at the inner edge thereof and the other of the spirals beginning at the inner edge and ending at the outer edge. The adjacent apertures of the spirals are disposed the same radial distance from the center of the disk so that the images are scanned twice in succession. Each of the apertures is bounded by arcs of concentric circles and by radii of the disk. The objects of the arrangement of the scanning disk apertures are to eliminate the inconvenient restrictions with respect to the area available for use as scanning space as defined by the distances between the open ends of the spirals, to provide means whereby an object may be scanned laterally by intermittent light beams or pencils which maintain perpendicularly a continuous, rhythmic, undulatory movement through the period of revolution of the disk; to provide means whereby the total area of the scanning space may be varied with respect to its dimensions; and to provide means whereby an object may be scanned with one revolution of the disk a plurality of times.

The scanning disk is divided circumferentially by a plurality of radial lines to form circumferential divisions and is divided radially by a plurality of concentric circles to form radial divisions and may be conveniently plotted by the following formula, in which:

A represents the number of circumferential divisions of the entire disk;

B represents the number of radial divisions included within the scanning area;

C represents the number of circumferential divisions between successive apertures; and

D represents the number of times the scanning area is scanned in one revolution of the disk and also the number of spirals in the system.

The following equation represents the relationship of the above quantities:

$$A = BCD$$

This equation may be solved for C or B as follows:

$$C = \frac{A}{BD}; \quad B = \frac{A}{CD}$$

By assuming the various constants of the disk, the apertures may be conveniently laid out in accordance with any desired scheme by following the above formula so as completely to scan the image any desired number of times for each revolution of the disk.

1,825,487. **Scanning Device.** A. O. TATE. Sept. 29, 1931. An endless belt is provided with a staggered series of apertures. The belt is looped around a multiplicity of guide drums and is driven by rollers at opposite ends of a frame structure, so that the apertures are moved successively across the field of a lens system for scanning an object within the field of the lens. The object is scanned in lines from bottom to top or top to bottom. The band is approximately 160 inches in length and has approximately 80 apertures therein, each spaced from the adjacent aperture at a distance of 4 inches.

1,825,497. **Light Projection Display Apparatus.** T. WILFRED. Sept. 29, 1931. A polysided screen consisting of a plurality of upright differently faced concave sides meeting in thin edges is provided for a display surface. There are light projecting means spaced outwardly in front of each of the concave sides, the several projecting means being adapted to project coöperatively upon the respective adjacent concave sides to produce an ornamental light display for attracting the attention of a spectator. The projection apparatus is used in various forms of floodlighting architectural displays.

1,825,598. **Process for Producing Combined Sound and Picture Films.** H. VOGT, J. MASSOLLE, AND J. ENGL. Assignors by mesne assignments to American Tri-Ergon Corp. Sept. 29, 1931. The sound and picture records are photographed on separate film strips to form separate negatives. The negative picture record is photographed upon a portion of a sensitized film not exposed to the sound record. The negative sound record is photographed on the same face of the sensitized film but on a portion thereof not exposed to the picture record. By the separation of the sound record from the picture record, a film record combining both of these records can be produced without subjecting either record to conditions of overexposure or underexposure.

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