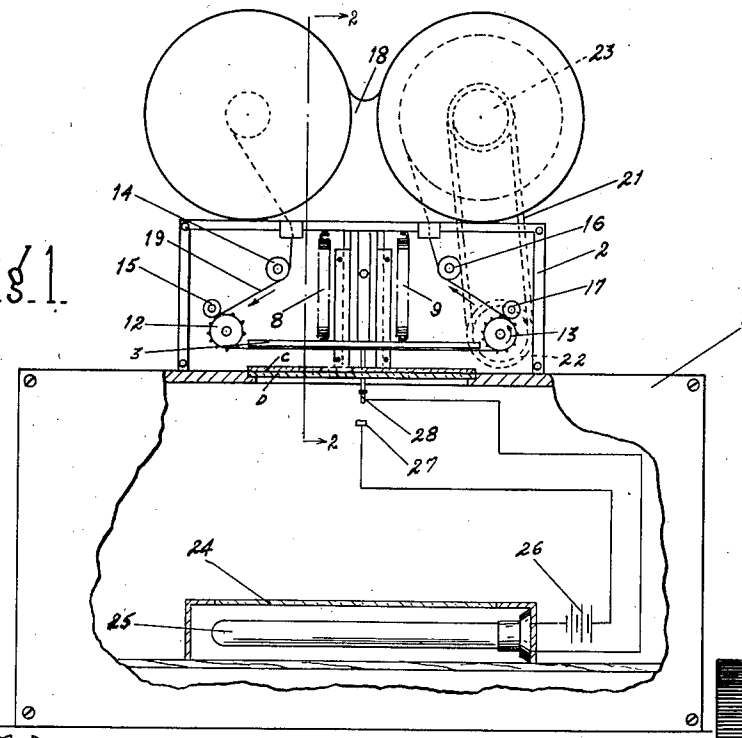
Sept. 1, 1931. F. H. OWENS 1,821,399

APPARATUS FOR INDICATING PRINTING LIGHT VALUES

Filed Dec. 16, 1929

Fig. 1.



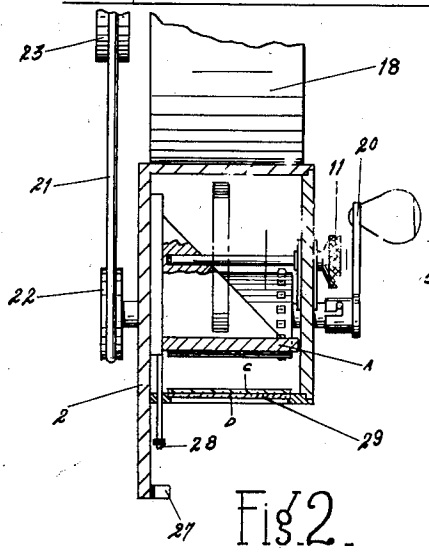


Fig. 2.

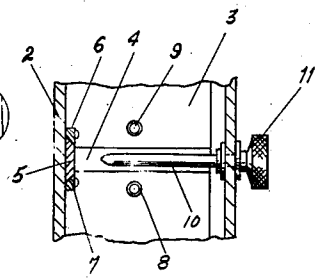


Fig. 3.

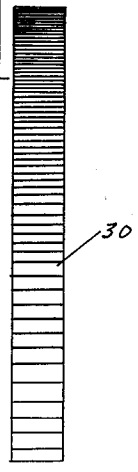


Fig. 4.

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UNITED STATES PATENT OFFICE

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APPARATUS FOR INDICATING PRINTING LIGHT VALUES

Application filed December 16, 1929. Serial No. 414,255.

This invention relates to improvements in apparatus for indicating printing light values, the principal object of the invention being to provide an apparatus whereby photographic films used in the production of moving pictures may be provided with a test gauge for determining the proper light value to be used in printing such films.

Other objects and advantages of the invention will appear as the description proceeds.

In the drawings accompanying this specification,

Figure 1 is a partly sectional and diagrammatic side view of an apparatus embodying the features of the present invention;

Figure 2 is a transverse sectional view taken approximately on the line II—II of Figure 1;

Figure 3 is a sectional plan view of a broken away portion of the apparatus; and

Figure 4 is a plan view of a density graduating strip forming an element of the invention.

The same characters of reference designate the same parts n the different figures of the drawings.

Referring to the drawings, 1 designates a box in which is supported a closed housing 2 in which is disposed a vertically movable platen 3. The platen 3 is provided on its upper surface about midway of its length with an integral, upwardly extending, triangular shaped web 4, the vertical edge of which merges into a flange 5 which is adapted to slide vertically between a pair of guide cleats 6 and 7 secured on one of the side walls of the housing 2 thereby to guide the platen in its vertical movements. The platen is normally retained at the upper limit of its movement by a pair of coil springs 8 and 9, attached at their opposite ends to the platen and the top of the housing 2, as shown clearly in Figure 1. For moving the platen downward, a rod 10 extends through a slot in the side wall of the housing opposite the wall on which the cleats 6 and 7 are disposed, said rod being secured at its inner end in the web 4 and provided at its outer end with an operating knob or button 11.

Within the housing 2 are mounted for rotation a pair of film driving sprockets 12 and 13 and a plurality of idler guide rollers 14, 15, 16 and 17, and the housing is provided in its top with an inlet slot and an outlet located so as to register respectively with the outlet and inlet slots of a film magazine 18, whereby when the magazine is placed on top of the housing a film 19 may be threaded from the supply reel carried by the magazine, into the housing 2 and around the guide rollers and sprockets above described, and beneath the platen 3 back into the magazine and on to the takeup reel carried thereby, as shown in Figure 1. The sprocket 13 may be provided with a crank handle 20 at one end of its arbor, for manually rotating the sprocket and such rotary motion may be transmitted to the takeup reel by means of a belt 21 passing over pulleys 22 and 23 secured respectively on the pintles of the sprocket 13 and the takeup reel.

Disposed in the box 1 is a housing 24 in which is mounted a printing lamp 25 of known intensity, and disposed in central vertical alignment with the platen 3. The said lamp is in circuit with a source of current 26, and the circuit includes a fixed contact 27, shown in Figure 3 as secured on a downward extension of the side wall of the housing 2, and a movable contact 28 depending from the platen 3, whereby when the platen is in the position shown in Figures 1 and 3 the lamp circuit will be open, and when the platen is depressed hereinafter described the circuit will be closed.

The box 1 is provided with a window or printing station 29 disposed in vertical alignment with the lamp 25 and the platen 3, and in such proximity to the latter that by operating the knob 11 the platen may be depressed into a position immediately overlying said printing station and at the same time carrying the movable contact member 28 into contact with the member 27, thereby closing the lamp circuit. On the printing station is disposed a strip of film or glass 30 having a series of sections of different densities graduated from opaque to transparent whereby the light passing from the

printing lamp through the printing station will be modified by the graduated sections of the film.

The operation of the apparatus is as follows:—

When exposing the film 18 in the usual way in a camera, the operator reserves unexposed a portion, for instance a few feet of the film preferably at the end thereof. The magazine containing the film is then placed on the housing 1 and the film threaded through said housing in the manner hereinbefore described. If necessary, the crank handle is operated to bring a suitable part of the unexposed portion of the film beneath the platen 3. The graduated strip 39 being in position over the printing station, the operator depresses the knob 11, thereby causing the platen to move downward until the underlying strip of film is in contact with the graduated strip on the printing station. At the same time, the member 28 is carried into contact with the member 27, thus closing the circuit and lighting the lamp, the rays from which pass through the graduated strip and on to that portion of the film 18 lying beneath the platen 3. An exposure is thus made on the film which, when the film is developed, comprises sections of graduated densities inversely corresponding to the sections of the strip 30. The film is thus provided with a test strip which may be used as a basis of comparison with the exposures on the film for determining the printing light value to be used in printing the film.

I claim:—

1. Apparatus for indicating printing light values, comprising in combination, a housing having a film inlet slit and an outlet slit, a vertically movable platen disposed in said housing, cooperating means carried by the platen and housing for guiding said platen in its vertical movements, means for retaining a photographic film in contact with the under surface of the platen, a pair of springs for retaining the platen at a predetermined height with relation to the housing, a light station below said platen, means for manually moving the platen against the tension of its springs thereby to carry said film into contact with said light station, an electric printing lamp in alignment with said light station, a fixed contact member in the circuit of said lamp, a second contact member in the circuit of the lamp and movable with the platen into contact with said fixed member thereby to close the lamp circuit when the film is in contact with the light station, and means carried by said light station for modulating the intensity of the light rays to different degrees at different portions of the film.

2. In an apparatus for indicating printing light values, the combination with a film carrying magazine having an outlet slit and an inlet slit, of a housing provided with an inlet slit and an outlet slit adapted to register respectively with the outlet and inlet slits of the magazine, a platen mounted for vertical movement in said housing, means for guiding a film from said magazine through the housing in contact with one surface of said platen and back to the magazine, a light station disposed in alignment with said platen, a member overlying said light station and having a plurality of areas of different densities, an electric printing lamp disposed in alignment with said light station, means for moving said platen toward and from the light station, and means operative to control the closing and opening of the lamp circuit during the movement of the platen.

3. In an apparatus for indicating printing light values, the combination with a film carrying magazine having an outlet slit and an inlet slit, of a housing provided with an inlet slit and an outlet slit adapted to register respectively with the outlet and inlet slits of the magazine, a platen mounted for vertical movement in said housing, means for guiding a film from said magazine through the housing in contact with one surface of said platen and back to the magazine, a light station disposed in alignment with said platen, a member overlying said light station and having a plurality of areas of different densities, an electric printing lamp disposed in alignment with said light station, manually operable means for moving said platen in one direction, automatically operative means for moving the platen in the opposite direction, and means operative to close and open the lamp circuit during the movement of the platen in opposite directions.

4. In an apparatus for indicating printing light values, the combination with a film carrying magazine having an outlet slit and an inlet slit, of a housing provided with an inlet slit and an outlet slit adapted to register respectively with the outlet and inlet slits of the magazine, a spring suspended platen mounted for vertical movement in said housing, means for guiding a film from said magazine through the housing in contact with one surface of said platen and back to the magazine, a light station disposed in alignment with said platen, a member overlying said light station and having a plurality of areas of different densities, an electric printing lamp disposed in alignment with said light station, manually operable means for moving said platen into contact with said light station against the tension of its springs and operative to close the lamp circuit at the end of said contacting movement.

In testimony whereof, I affix my signature.

FREEMAN H. OWENS.