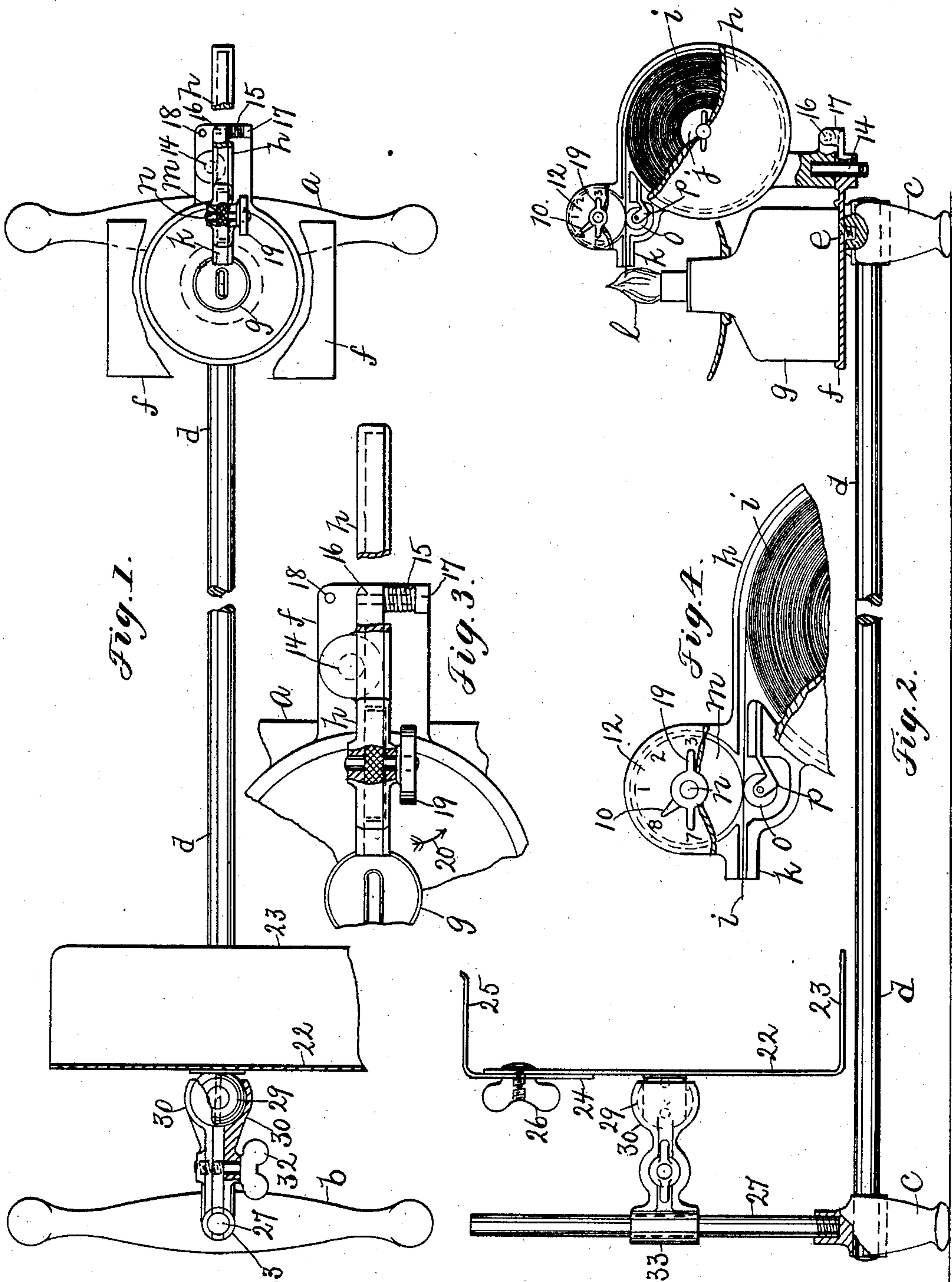


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E. J. RAY.
PHOTOGRAPHIC APPARATUS.
APPLICATION FILED SEPT. 30, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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PHOTOGRAPHIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 756,708, dated April 5, 1904.

Application filed September 30, 1903. Serial No. 175,151. (No model.)

To all whom it may concern:

Be it known that I, EUGENE J. RAY, a citizen of the United States, residing in Winchester, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Photographic Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to photographic apparatus, and more particularly to a photo-exposing and printing lamp with which superior results may be obtained, as will be described. For this purpose the lamp is provided with a carrier or holder for a strip, ribbon, or band of magnesium or other suitable illuminating material, which is provided with a feed mechanism, preferably manually operated, and with an indicating device co-operating with said feed mechanism whereby the amount or length of the magnesium strip or ribbon fed forward into the flame of the lamp may be accurately determined, so as to obtain the volume or intensity of light desired or required for the particular work. The carrier or holder for the magnesium strip or band may be mounted so as to be movable with relation to the lamp, whereby the magnesium strip may be fed forward into the flame of the lamp and ignited and when ignited may be removed out of or away from said flame, so that the said strip or ribbon may burn with a pure white light which is uncontaminated by the flame of the lamp. The holder referred to may be manually moved with relation to the lamp; but I prefer to move the same automatically, as will be described. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a plan view of one form of apparatus embodying this invention; Fig. 2, a front elevation of the apparatus shown in Fig. 1 with parts broken away; Fig. 3, a detail in plan and on an enlarged scale to be referred to; and Fig. 4 a detail in elevation, on an enlarged scale, to be referred to.

The apparatus herein shown as embodying this invention is provided with a supporting-frame comprising the cross-bars *a b*, having

feet *c* and connected together by a tie-rod *d*. The cross-bar *a* has secured to it, as by one or more screws *e*, a plate or platform *f*, adapted to support an alcohol or other lamp *g*, with which coöperates a holder or carrier *h* for a strip, ribbon, wire, or band *i*, of magnesium or other suitable illuminating material. The holder or carrier *h* may be made as herein shown and consists of a hollow casing containing a drum or shaft *j*, upon which the ribbon or strip *i* may be wound into the form of a coil, as clearly shown in Figs. 2 and 4. The holder or carrier *h* is provided with a discharge-nozzle *k*, through which the strip or band *i* is fed into the flame *l* of the lamp by a feed mechanism, which may be made as herein shown and consists of a serrated or knurled wheel *m*, mounted on a shaft *n* above the nozzle *k*, and a pressure-roller *o*, mounted in a sheet-metal spring *p*, attached to the casing below the nozzle *k* and in line with the feed-wheel *m*. The shaft *n* has fast on it a pointer or index 10, which registers with a dial 12, provided with graduations which may represent inches or other predetermined lengths, by means of which the operator can accurately determine the length of the magnesium strip or ribbon which is fed out of the machine into the flame of the lamp, and thereby accurately determine the length of exposure. The carrier or holder for the magnesium strip is preferably movable with relation to the lamp, so that as soon as the magnesium strip is ignited it may be moved out of the flame and allowed to burn with a pure white light which is uncontaminated by the flame of the lamp, for if the magnesium strip is allowed to burn in the flame of the lamp, as is now commonly practiced, the light obtained is contaminated by the yellow flame of the lamp, and inferior results are obtained. The carrier or holder may and preferably will be automatically moved, and this result may be accomplished as herein shown. In the present instance the carrier or holder is mounted to turn on a vertically-arranged pivot 14, extended upward from the base or support *f*, and the said holder or carrier has coöperating with it on one side of said pivot a spring 15, (see Fig. 3,) which loosely encircles a stud or pin 16, extended

from the carrier or holder (see Figs. 1 and 3) and bearing against a lug or ear 17 on the base or support *f*. The carrier or holder *h* is moved into its operative position (shown in Figs. 1 and 3) by the operator, and its movement in the opposite direction by the spring 15 is limited or arrested by a suitable stop on the base *f*, which stop is shown as a pin or stud 18, erected upon said base on the side of the holder or carrier opposite to the spring 15.

In operation with the apparatus as thus far described the operator moves the holder or carrier *h* into line with the lamp-flame and turns the shaft *n* until the pointer 10 registers with the graduation on the dial which indicates the length of strip or ribbon it is desired to burn. The rotation of the shaft *n* feeds out of the holder a predetermined length of ribbon or strip *i*, and as soon as said strip is ignited the operator releases his hold on the thumb-nut or handle 19 on the pointer-shaft *n*, and the spring 15 then turns the holder on its pivot in the direction indicated by the arrow 20, Fig. 3, until the holder is engaged with the upright pin 18, which arrests the movement of the holder. When the holder or carrier is moved by the spring 15, as described, the ignited strip *i* is carried out of the flame of the lamp and continues to burn with a pure white light which is not discolored or contaminated by the yellow flame of the lamp, thereby exposing the negative or film to the best advantage.

The negative or film (not herein shown) may be held in proper position by a holder, which may be made as herein shown and consists of a lower section or frame 22, having a bottom flange 23 and provided with an extensible top section 24, also provided with a flange 25. The upper section 24 may be secured in its adjusted position by the set-screw 26, and the lower section may be secured to an upright post or rod 27, erected on the cross-bar *b*, by a substantially universal joint comprising a ball 29, secured to the lower section 22 of the plate-holder, and clamping-jaws 30, frictionally engaged with the ball 29 by the clamping-screw 32, the clamping-jaws having a hub 33 which is movable on the upright rod 27.

I claim—

1. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material, a feed mechanism for said strip carried by said carrier, a graduated dial, a pointer movable with said feed mechanism and cooperating with said dial, a support upon which said carrier is pivotally mounted, and means to move said carrier on its pivot, substantially as described.

2. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material, a manually-operated feed mechanism cooperating with said strip, a graduated dial, and a pointer or index cooperating with said dial and movable with said feed mechanism, substantially as described.

3. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material provided with a drum upon which said strip or ribbon is wound, and with a nozzle through which said strip is fed, a manually-operated feed mechanism carried by said carrier and an indicating device movable with said feed mechanism, substantially as described.

4. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material, a feed mechanism carried by said carrier and cooperating with said strip, and a support upon which said carrier is movably mounted, substantially as described.

5. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material, a feed mechanism carried by said carrier and cooperating with said strip, a support upon which said carrier is movably mounted, and means to automatically move said carrier on its support, substantially as described.

6. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material, a support upon which said carrier is movably mounted, and means to automatically move said carrier on its support, substantially as described.

7. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material, a manually-operated feed mechanism carried by said carrier, and an indicating device movable with said feed mechanism, substantially as described.

8. In a photographic apparatus of the class described, in combination, a carrier for a strip or ribbon of illuminating material, a lamp to ignite said strip, a feed mechanism to move said strip into the flame of said lamp, and means to move said carrier and withdraw the strip from the flame after it is ignited, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EUGENE J. RAY.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.