

(No Model.)

R. DE BARRIL.
PHOTOGRAPHIC CAMERA.

No. 475,919.

Patented May 31, 1892.

Fig. 1.

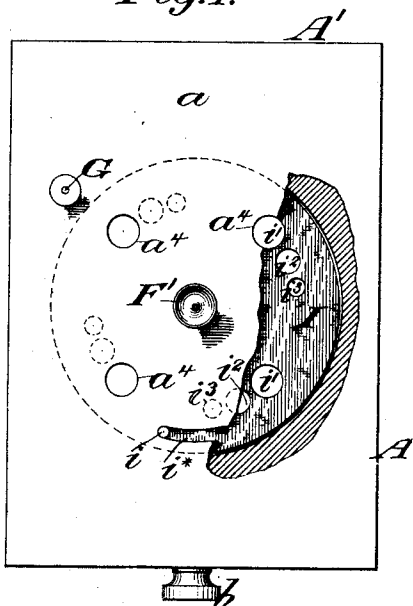


Fig. 2. x

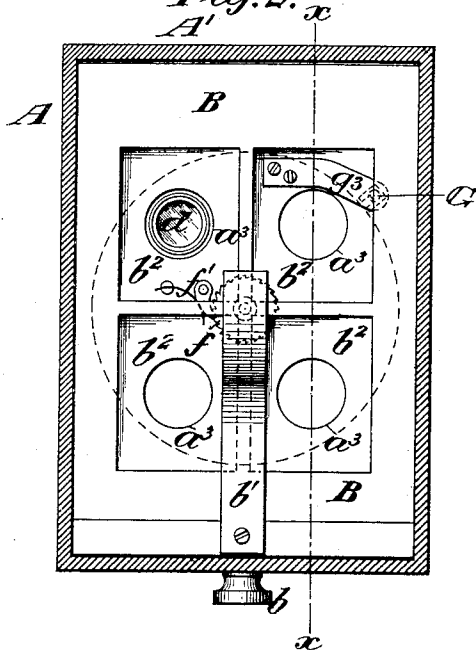


Fig. 3.

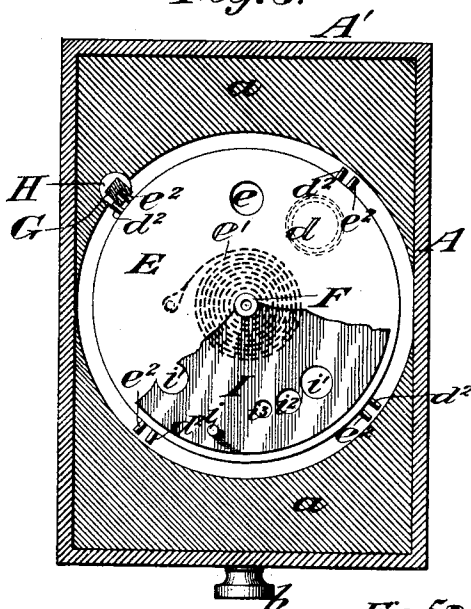


Fig. 4.

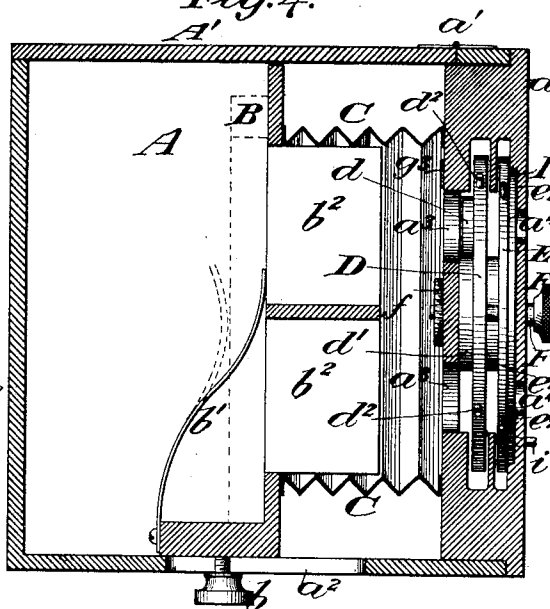
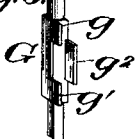


Fig. 5.



Witnesses:-

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UNITED STATES PATENT OFFICE.

ROBERT DE BARRIL, OF NEW YORK, N. Y.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 475,919, dated May 31, 1892.

Application filed August 8, 1891. Serial No. 402,069. (No model.)

To all whom it may concern:

Be it known that I, ROBERT DE BARRIL, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Photographic Cameras, of which the following is a specification.

My invention relates to an improvement in photographic cameras of the detective type in which provision is made for making several exposures in succession without changing the position of the plate-holder.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the camera in front elevation, a portion of the front of the box being removed. Fig. 2 is a view in rear elevation, the back of the box being removed. Fig. 3 is a transverse vertical section through a plane immediately to the rear of the front of the box and showing the diaphragm partially broken away. Fig. 4 is a view in transverse vertical section through line xx of Fig. 2, and Fig. 5 is a view in detail of the escapement for operating the lens-carrier and shutter.

The box A is represented as of oblong rectangular form, such as is common, and is provided with a front a and top A' , shown in the present instance as hinged at the front at a' , so that it may be swung open at pleasure. The plate-holder support is represented by B and is secured within the box in the desired adjustment toward and away from the front by means of a set-screw b , which extends through an elongated slot a^2 in the bottom of the box into engagement with the base of the holder. A clamping-spring b' serves to hold the plate-holder firmly to its support. Several openings b^2 —in the present instance four—open through the support B toward the front for the purpose of admitting light to the several plates or several portions of a single plate, which may be carried by the plate-holder of well-known or approved form, the position of which is indicated in dotted lines in Fig. 4. A bellows C surrounds the series of openings b^2 and shuts out the light thereto, excepting through the lens, as is common. The front a has journaled therein a rotary disk D, carrying the lens d , and a rotary shutter E, provided with an opening e .

The disks D and shutter E are loosely mounted upon a winding-spindle F and are actuated the former by means of a spring d' and the latter by means of a spring e' , one end of each of the springs being connected to the spindle F and the other end to its respective disk or shutter. A ratchet-wheel f is fixed to rotate with the spindle F, and a pawl f' , mounted on the inner face of the front a , is adapted to engage the teeth of the ratchet-wheel f and prevent the spindle from rotating under the tension of the springs. The disks D and E are each provided with pins projecting from their peripheries, those upon the former being denoted by d^2 and those upon the latter being denoted by e^2 , the number of pins corresponding to the number of exposures which are to be made during a single revolution of the disk—in the present instance four. The rear portion of the front a is provided with openings a^3 and the forward portion of said front with corresponding openings a^4 , arranged in alignment with the openings b^2 , and the lens d is so located upon the disk D that during the rotation of said disk it will present itself successively in alignment with the several openings a^3 and a^4 . The opening e in the shutter E is also so located that during the rotation of the shutter E it will present itself successively in alignment with the several openings a^3 and a^4 and when at rest will be intermediate between the openings a^3 and a^4 .

It is intended that the lens shall be carried successively in front of the series of openings a^3 and a^4 and that while it is allowed to rest in alignment with the openings the opening in the shutter shall pass it, admitting a flash of light therethrough, the lens itself being allowed to pass to the next successive opening, while the opening in the shutter E is closed by the front of the box. To this end I employ an escapement consisting of a short longitudinal reciprocating bar or shaft G, adapted to rest in a suitable seat H, formed for it in the casing in proximity to the peripheries of the disk D and shutter E, the said escapement being provided with wings or lugs g , g' , and g^2 , spaced from each other and adapted to engage the pins upon the disks D and E, as follows:

Suppose the disk D, under the tension of its actuating-spring d' , to rest with one of its pins

d^2 in engagement with the wing g' on the escapement and its lens in alignment with the openings in the front, and suppose the disk E, under the tension of its actuating-spring e' , to rest with one of its pins e^2 in engagement with the wing g^2 on the escapement and its opening e intermediate between the two openings in the front. If now, the plate-holder being in position, it is desired to make an exposure, the escapement G is pressed to the rear against the tension of its returning-spring g^3 , permitting the pin upon the shutter-disk E to escape over the top of the wing g^2 , and thereby allowing the shutter to rotate under the tension of its spring, causing the opening e therein to pass the openings in the front a and allow a flash of light to pass through the front and through the lens d through one of the openings b^2 to the exposed plate. This same depression of the escapement will also permit the pin of the disk D to escape over the wing g' into engagement with the wing g^2 and will bring the wing g into position to arrest the movement of the shutter E by the engagement of a succeeding pin with the wing g . Upon the return movement of the escapement under the influence of its spring g^3 the pin of the lens-carrying disk D will be allowed to escape past the lower end of the wing g^2 , and the lens will thereby be carried forward in front of the next succeeding opening b^2 and corresponding openings in the front. The same outward movement of the escapement will also permit the pin upon the shutter to escape underneath the wing g and into engagement with the wing g^2 in position to be again released as soon as the escapement is depressed. When the lens-carrying disk moves forward to present its lens before a succeeding opening, it is arrested in its movement by a succeeding pin coming into engagement with the wing g' .

By a succession of inward pushes upon the escapement and the corresponding outward movement of the escapement under the tension of its spring a succession of exposures may be rapidly and successfully made without moving or manipulating any other part of the camera.

For the purpose of regulating the amount of light which shall be allowed to enter through

the openings a^4 in the front I provide a diaphragm, in which are formed several series of openings corresponding to the number of openings in the front proper and so arranged that the openings of the desired size in each of the series may be simultaneously presented to the rear of the openings in the front. I have here shown the diaphragm as a disk mounted loosely upon the winding-spindle F and provided with a forwardly-extending pin i , which projects through an elongated slot i^* in the front, so that the diaphragm may be moved to bring either one of the series of openings i' , i^2 , and i^3 in front of the corresponding openings in the front proper.

What I claim is—

1. The combination, with a plate-holder support and a front provided with a plurality of openings for the admission of light, of a rotary lens-carrier, a rotary shutter, means for holding the carrier and shutter under tension, and means for releasing them at intervals to bring the lens and an opening in the shutter successively in alignment with the openings in the front, substantially as set forth.

2. The combination, with the plate-holder support and a front provided with a plurality of openings for the admission of light, of a winding-spindle, a rotary lens-carrier and rotary shutter, both loosely mounted on the spindle, actuating-springs connecting the lens-carrier and shutter with the winding-spindle, and an escapement under the control of the operator to bring the lens and an opening in the shutter alternately in alignment with the openings in the front, substantially as set forth.

3. The combination, with the plate-holder support and the front provided with a plurality of openings, of a diaphragm provided with series of different-sized openings, one series for each opening in the front, means for rocking the auxiliary front to bring the different openings of each series in alignment with the openings in the front, a rotary lens-carrier, a rotary shutter, and means for operating them, substantially as set forth.

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Witnesses:

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