S. WING.

PHOTOGRAPHIC CAMERA.

No. 78,408. Patented May 26, 1868.

Fig. 1.

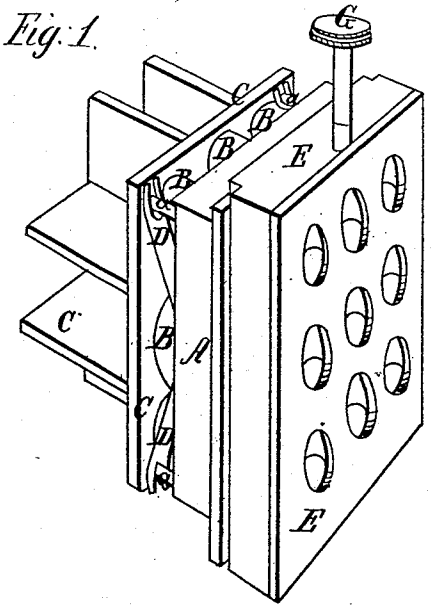


Fig. 3.

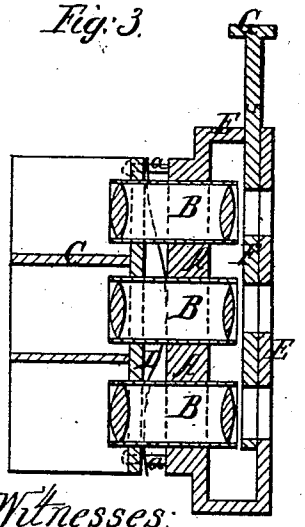
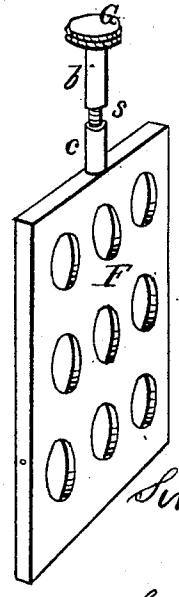


Fig. 2.



Witnesses,

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Letters Patent No. 78,408, *dated May* 26, 1868.

IMPROVEMENT IN PHOTOGRAPHIC CAMERAS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, SIMON WING, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain Improvements in the Photographic Camera; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of that portion of the instrument to which my improvements apply.

Figure 2 is a separate view of the shut-off.

Figure 3 is a section on line *x x* of fig. 1.

The same part is marked by the same letter wherever it occurs.

These improvements consist, first, in making the partition self-adjusting, so as to be in contact with the diaphragm in all positions of the lenses; second, in providing a uniform and simultaneous shut-off to all the lenses; and third, in making the handle of the shut-off removable, so as to be inserted through the box and attached after the lens-block has been introduced, all as hereinafter more fully set forth.

In a multiplying-camera it is necessary to use a partition divided into as many compartments as there are lenses in the instrument; and these compartments should extend from the lenses to the diaphragm, in order that no light may pass from one compartment to another to blur the picture.

In some of the instruments in use, the partition is fixed to the lens-block, so that when the latter is drawn away from the diaphragm, to change the size of the pictures, the partition is also withdrawn from contact with the diaphragm, and an open space is left between them, across which the light is free to pass from one compartment of the partition to another, to the great injury of the pictures, which are blurred and rendered indistinct. In some instruments this difficulty has been met by having a variety of partitions, suited to various relative distances between the lenses and the diaphragm, and these partitions are sometimes attached to the diaphragm, which has to be removed with them. In all these cases the mode of adjustment is imperfect, clumsy, and inconvenient, involving considerable loss of time, and necessitating a multiplicity of detached parts, liable to loss and injury.

In my improved instrument, the partition is always kept in close contact with the diaphragm, in all positions of the lenses, by the action of a spring. When the spring is free, the lenses are at the greatest distance from the diaphragm that they are ever required to be, and the distance is lessened by compressing the spring until the minimum is reached, when the partition is in contact with the lens-block. The range of motion given to the spring is sufficient for all the changes ever required.

In the accompanying drawings, A marks the lens-block; B, the lens-tubes; C, the partition, divided, in this case, into nine compartments; D, the springs, one on each side, attached at the middle to the lens-block, their free ends having forks, which receive and play upon the rods *a*. These rods *a* project from the corners of the block A, and receive the partition C, which has free motion on them towards and from the lens-block, the range of motion towards the diaphragm being limited by the heads of the rods *a*, which are received in countersunk holes in the corners of the partition. E marks the shut-off case, the front of which is perforated with holes to correspond in position and number with the lenses. The shut-off is a thin piece of wood or pasteboard, F, perforated with the same number of holes as the front of its case, E. It slides up and down in the case, being operated by the handle G. The holes in the shut-off correspond in size and relative position with those in the case; and when the shut-off is at its highest position, the holes coincide and admit light to the lenses. When the handle G is pushed down, the solid portion of the shut-off passes across the holes in E, and closes them all simultaneously. As the handle G would be in the way of the introduction of the lens-block, and the parts attached to it, into the camera-box, I make it in two parts, *b c*, which are united by the screw *s*. The handle is removed while the block is being introduced, and is then inserted through a hole provided for the purpose in the top of the box, and again screwed on.

The common method of shutting off is by throwing a cloth over the object-end of the instrument, or by closing it by a lid hinged at the top or side. The operation of either of these methods is irregular, some of the

pictures necessarily receiving more time than others. When, for example, a lid hinged at top is used, the bottom lenses, which are the first to receive the light, are the last to be shut off from it. If, therefore, the upper part of the plate gets the proper exposure, the lower part must get too much. My shut-off obviates this by operating uniformly and simultaneously on all the lenses.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The self-adjusting partition C, so acting as to be in contact with the diaphragm in all positions of the lenses, without interfering with the adjustment of the latter, substantially in the manner and for the purpose described.

2. In combination with a sliding shut-off, the handle G, constructed and operated in the manner and for the purpose set forth.

The above specification of my said invention signed and witnessed at Boston, this 21st day of November, A. D. 1867.

SIMON WING.

Witnesses:

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