2 Sheets—Sheet 1.

J. C. MOSS.

Photographic-Camera.

No. 196,591 Patented Oct. 30, 1877.

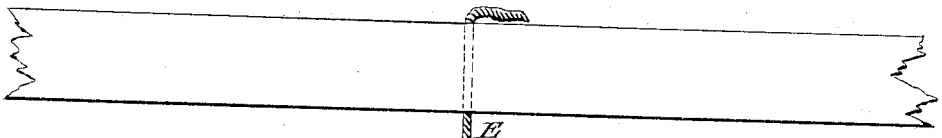

Fig. 1.

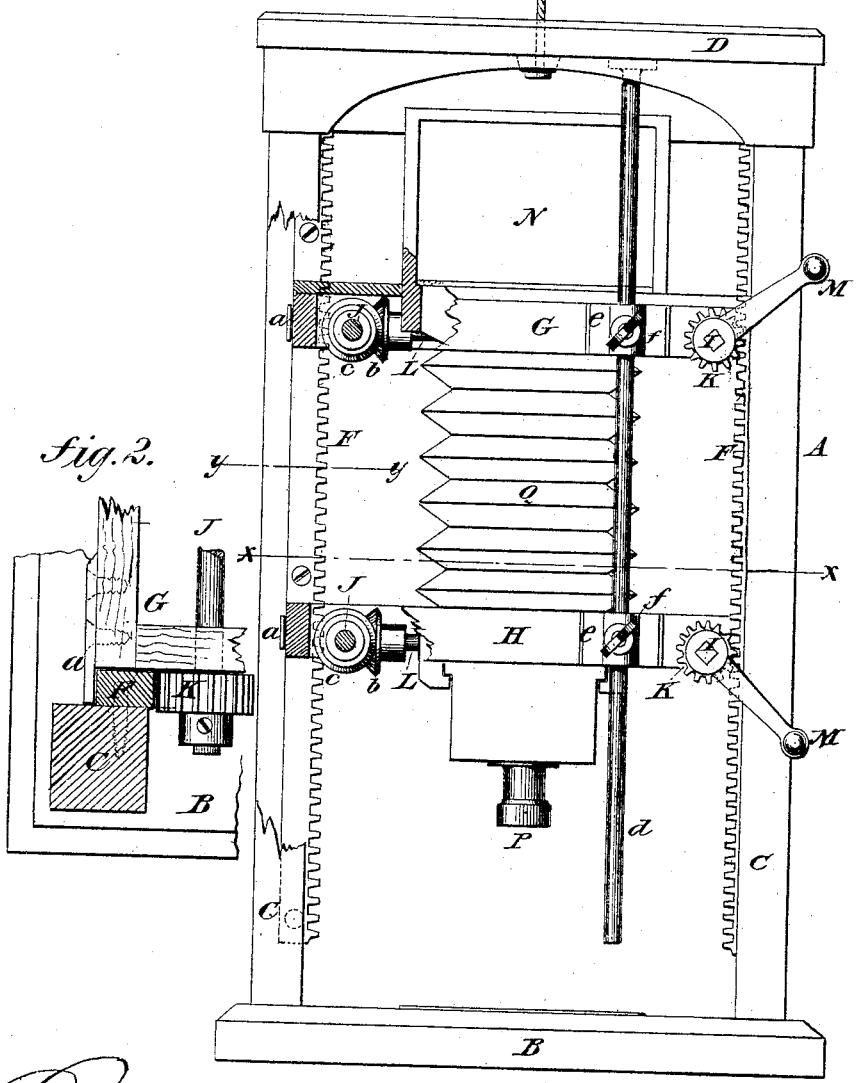

Fig. 2.

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2 Sheets—Sheet 2.

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fig. 3.

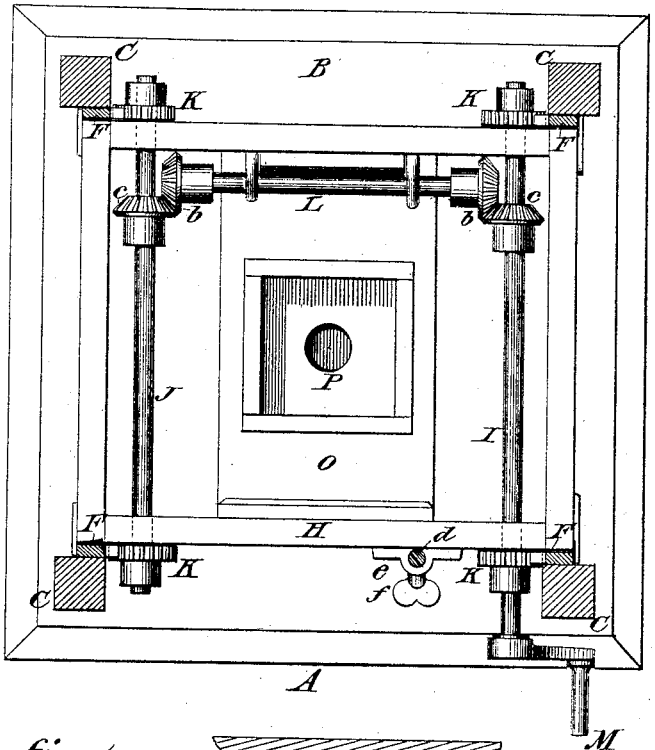
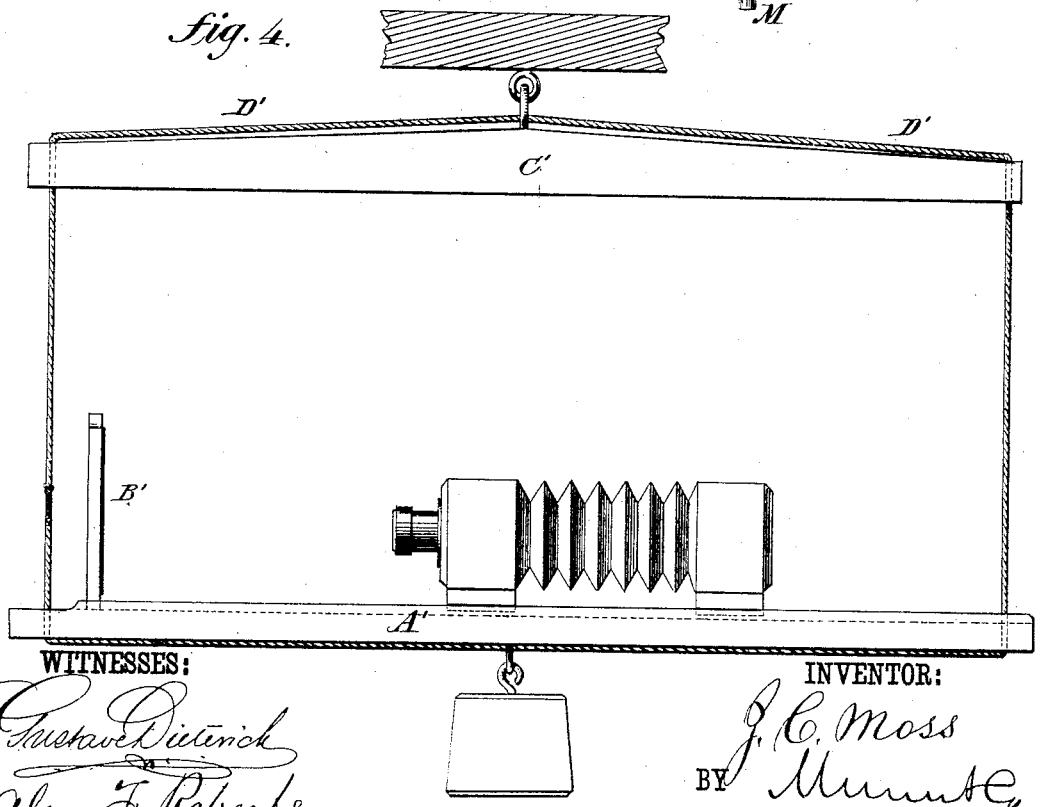


fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN C. MOSS, OF NEW YORK, N. Y.

IMPROVEMENT IN PHOTOGRAPHIC CAMERAS.

Specification forming part of Letters Patent No. **196,591**, dated October 30, 1877; application filed July 18, 1877.

To all whom it may concern:

Be it known that I, JOHN CALVIN MOSS, of the city, county, and State of New York, have invented a new and Improved Photographic Copying-Camera, of which the following is a specification:

Figure 1 is a side elevation, partly in section, of my improved photographic camera. Fig. 2 is a detail view, in section, on line *y y* in Fig. 1. Fig. 3 is a transverse section on line *x x* in Fig. 1. Fig. 4 is a side elevation of a modified form of camera.

My invention relates to cameras for copying drawings, photographs, &c.; and it consists, mainly, in a device for suspending the instrument so that it will not be affected by the jarring and vibration of the building in which it is placed.

It also consists in mechanism for focusing and adjusting the camera, which will be hereinafter more fully explained.

In the drawing, A is a frame, in which B is a level bed-piece, to the corners of which four vertical posts, C, are attached, which are all connected with a top piece, D.

A rope, E, is attached to the center of the top piece D, and is secured to a hook in the ceiling or to some other fixed object.

To each of the four posts C a rack, F, is secured, which extends nearly the whole length of the post. Frames G H are fitted between the racks, and are provided with plates *a*, which extend beyond the frames, and across the back of the racks, and serve to guide the frames G H as they are moved up and down in the frame A.

In each of the frames G H shafts I J are journaled, in opposite sides, and each shaft carries two pinions, K, one on each end, at the outsides of the frames, for engaging the rack F. In each of the frames G H a shaft, L, is journaled at right angles to the shafts I J, and upon its ends miter-wheels *b* are placed, which mesh into the miter-wheels *c* on the shafts G H.

By means of this arrangement of gearing, the shafts G H are moved simultaneously, but in opposite directions, so that when the shafts I are turned, by means of the cranks M, the frames G H are moved up or down, as may be required, and always parallel to the bed-piece B. The upper frame G carries the focusing-glass, and is provided with a box or hood, N, for excluding light.

The lower frame H is provided with a board, O, for carrying the camera-tube P, and the two frames are connected by a bellows, Q.

A rod, *d*, is attached to the top piece D, and a strap, *e*, having an adjusting-screw, *f*, is attached to each of the frames G H for receiving and clamping the rod, for the purpose of holding the frames rigidly at any desired point.

The picture to be copied is placed on the bed-piece B, and the camera-tube and focusing-glass are adjusted by means of the racks and pinions, as before described.

The modification shown in Fig. 4 consists of a bed-piece, A, for supporting the camera, which is provided with a board, B′, for supporting the picture to be copied. This bed is suspended from a beam, *c′*, which is supported at its center from some fixed object by a hook and eye.

The rope D′, by which the bed is suspended, passes through holes in the beam, and also through holes in the ends of the bed. At the front end of the bed the rope is double, and passes through two holes in the bed, one at each side, to prevent it from tipping. The camera is adjusted by drawing the rope through the beam to elevate or depress the camera-tube, and by moving the bed on the double rope the camera is tipped to one side or the other, as may be required.

The spoiling of copies, which results from the trembling and jarring of buildings, is by my improvement obviated, and the camera is readily adjusted, so that the picture may be brought into the proper relation to the light.

To increase the stability of the bed, a weight is attached to the rope D at or near the center of the bed.

When a camera is suspended from different points, as has always been heretofore done, there will be independent vibratory motions from these several points not in harmony with each other, and giving a twisting motion to the camera. By suspending from a single point, I have discovered by repeated experiments, this objection is completely removed.

What I claim is—

1. A camera suspended by a rope or other flexible connection from a single point, and in the same sling with the object to be copied, as shown and described.

2. A camera having at each end thereof four pinions connected to rotate simultaneously, in combination with a frame containing four racks, substantially as shown and described.

3. The bar *d*, in combination with the frames G H, each having a clamp for binding the rod, substantially as shown and described.

4. The combination of the bed A′, having the support B′, the beam C′, and the rope D′, substantially as shown and described.

JOHN C. MOSS.

Witnesses:

C. SEDGWICK,

ALEX. F. ROBERTS.