(No Model.)

J. SUDER.

Photographic Camera.

No. 236,916. **Patented Jan. 25, 1881.**

Fig 1.

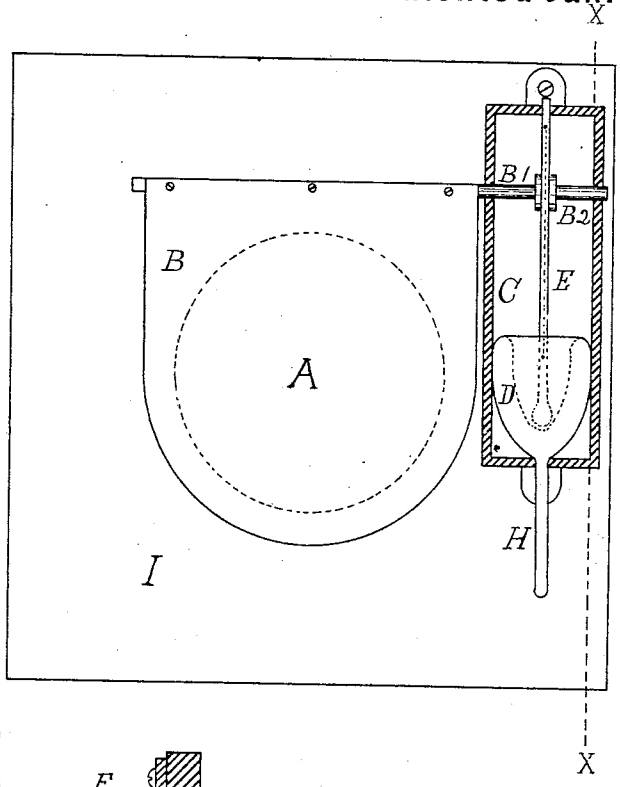
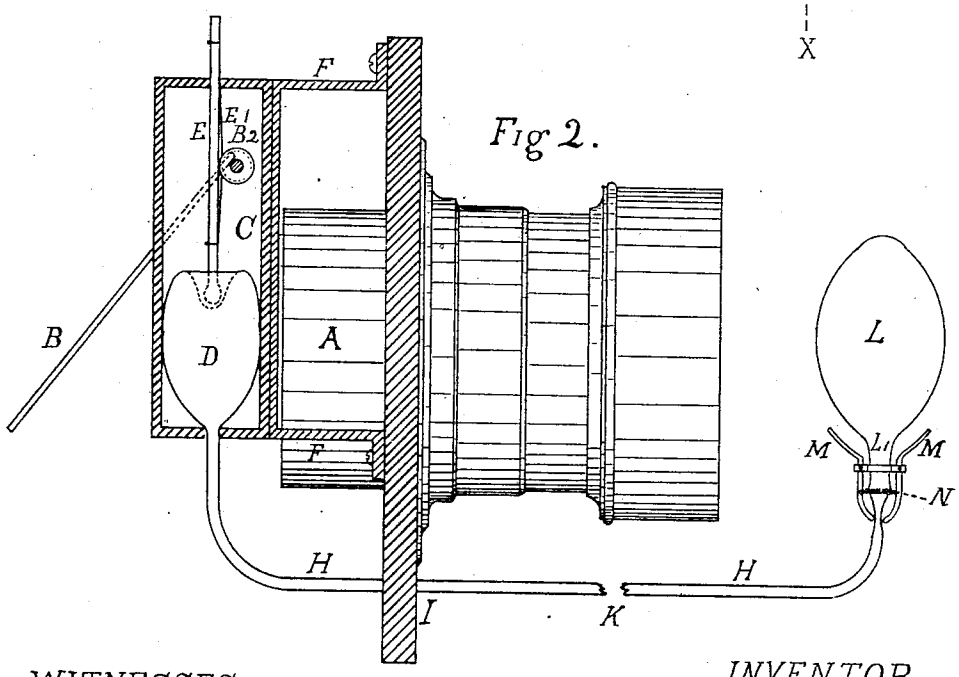


Fig 2.



WITNESSES

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JOSEPH SUDER, OF TRENTON, NEW JERSEY.

PHOTOGRAPHIC CAMERA.

SPECIFICATION forming part of Letters Patent No. 236,916, dated January 25, 1881.

Application filed May 18, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SUDER, of the city of Trenton, State of New Jersey, have invented a new and useful Improvement in Photographic Cameras, of which the following is a specification.

My invention relates to improvements in photographic cameras in which, by means of an inside shutter, placed at the inside end of the tube containing the lenses, the image of the sitter in front of the camera can be shut off from the sensitized plate within the plate-holder of the camera-box, without the use of any outer cap to such tube, until the sitter is placed in a correct position, and then, by the operation of machinery so arranged and constructed as to work noiselessly and with ease, the shutter can be raised by the operator without the knowledge of the person sitting for a portrait, and without in the least degree disturbing the perfect rest of the camera-box, and held in position until the exposure of the plate is completed.

In all appliances heretofore used for allowing the exposure of the plate to the image of the sitter the means used to effect such exposure have been visible to the sitter, frequently causing, at the moment of exposure and during its continuance, nervous starts or restlessness on the part of the sitter, or have been so devised as to be incapable of operation without jarring and disturbing that perfect motionlessness of the camera requisite to produce a sharp and clear impression upon the plate. These objections are overcome by the mechanism and processes I employ, and which mechanism is shown in the accompanying drawings.

In these drawings, in which similar letters of reference represent similar parts, Figure 1 represents an inside view of the tube end of the camera-box, showing the shutter down over the mouth of the tube, and a front view of the machinery arranged within the camera-box to raise the shutter, the front of the box C being removed to allow the machinery within the box to be seen. Fig. 2 represents the lens-tube with a section of the tube end of the camera-box and a side view (exposed by removal of one side of the box C) of the machinery for raising the shutter.

In Fig. 1 the space A within the dotted circular line represents the end of the lens-tube.

B represents the shutter fastened to a shaft, B′. Upon this shaft is a small wheel or pulley, B^2, fixed rigidly to the shaft.

Within an oblong box, C, is placed a ball or bulb, D, of thin india-rubber or other flexible substance. This bulb is partly filled with air. Upon the top of this bulb rests a bar, E. Near the top of this bar is attached a cord, E′, which passes around the pulley B^2, and is fastened to the bar E, near the lower end of the bar.

To the bulb D is attached a small flexible tube, H. This tube passes out of the box C through the tube end I of the camera-box, and is of any desired length. In Fig. 2 this tube is shown with a break at K. This break simply represents the indefinite length to which the tube H may be extended.

At the end of the tube H is another flexible bulb, L. (Shown in Fig. 2.) To the neck L′ of this bulb L are attached, by hinges, two clamps, M M, the outer ends of which, by means of a spring, N, are pressed against the tube H, preventing the passage of air through the tube H during such pressure.

The box C is held in position by the feet F F. These feet, being made of thin metal, can be fixed at any angle, and thus allow the box to be placed nearer to or farther from the tube end I of the camera-box.

The sitter being placed in position before the camera, the operator, standing in any part of the room, takes the bulb L in his hand, presses with his fingers and hand upon the bulb and clamps, compressing the bulb and raising the clamps. The air, being expelled by such compression from the bulb L, passes through the tube H, enters the bulb D, fills it, thus raising its sunken upper end. This end, in rising, carries with it the bar E and cord E′. The pulley B^2 and shaft B′ are partly rotated, and the shutter B is raised from the front of the tube, allowing the rays of light from the lenses in the tube to pass within the camera-box, and the image of the sitter is projected upon the plate. The shutter being raised, the operator, by releasing the pressure from the clamps M M, allows them to press the tube H, closing it, and preventing the re-

turn of the air, thus holding the shutter in a raised position until the exposure of the plate is ended; then, by pressing the clamp, the tube H is opened, a portion of the air passes out of the bulb D, through the tube H, to the bulb L, the upper end of the bulb D sinks, by the weight of the bar E, and the shutter closes against the end of the lens-tube. The bulbs and the tube H, being all connected by air-tight couplings, and being constructed of india-rubber or other flexible and air-tight material, the slightest pressure upon one bulb will send the air out of the bulb into and fill the other bulb.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The bulb L, in combination with the tube H, bulb D, bar E, cord E′, pulley B^2, shaft B′, and shutter B, all substantially as shown, and for the purposes set forth.

2. In a photographic camera, the shutter B, shaft B′, and pulley B^2, in combination with the bar E and cord E′, substantially as shown, and for the purpose set forth.

3. In a photographic camera, the shutter B, shaft B′, pulley B^2, bar E, and cord E′, in combination with the bulb D, substantially as shown, and for the purpose set forth.

4. In a photographic camera, the bulb L, in combination with the clamps M M and tube H, substantially as shown, and for the purpose set forth.

5. The bulb L, in combination with the clamps M M, with spring N, and tube H, substantially as shown, and for the purpose set forth.

JOSEPH SUDER.

Witnesses:

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