

S. T. STEIN.
Photographic Plate-Holders.

No.150,097.

Patented April 21, 1874.

Fig.1.

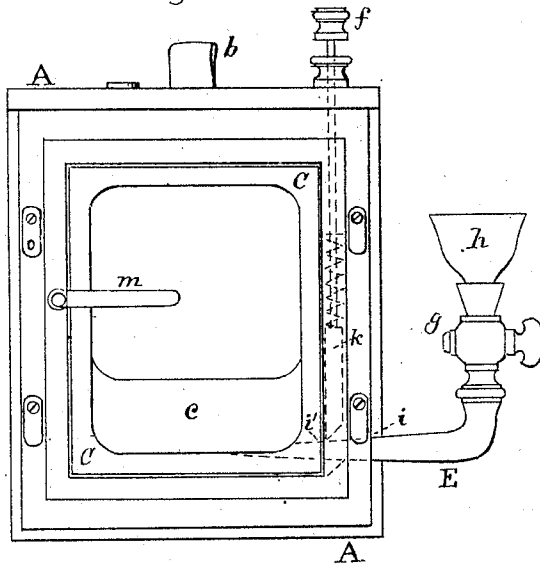


Fig.2.

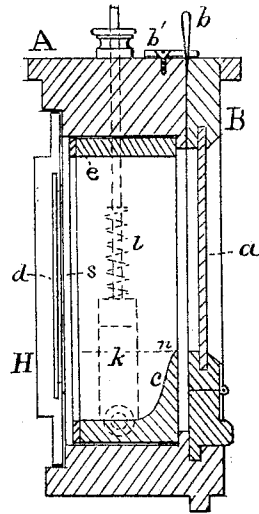


Fig.3.

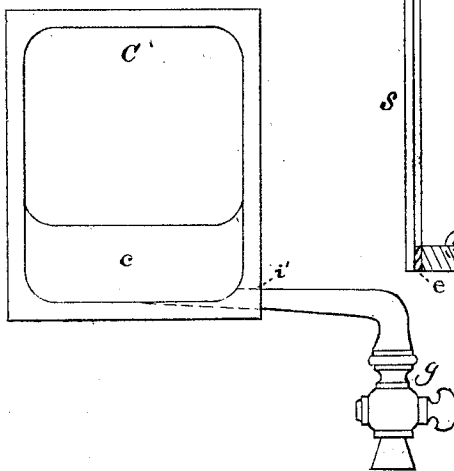
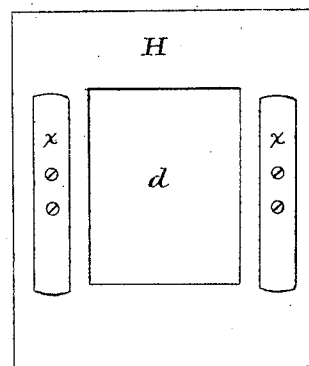


Fig.4.



Fig.5.



Witnesses:

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UNITED STATES PATENT OFFICE.

SIGISMOND T. STEIN, OF FRANKFORT, GERMANY.

IMPROVEMENT IN PHOTOGRAPHIC-PLATE HOLDERS.

Specification forming part of Letters Patent No. **150,097**, dated April 21, 1874; application filed August 21, 1873.

To all whom it may concern:

Be it known that I, SIGISMOND THEODORE STEIN, M. D., of Frankfort, Germany, have invented an Improved Apparatus for Photographing, of which the following is a specification:

The following description, taken in connection with the accompanying drawing hereinafter referred to, forms a full specification, wherein are set forth the nature and principles of the said invention, together with such parts as are desired to be secured by Letters Patent of the United States.

My invention relates to that class of photographic instruments commonly known as the "photographic-plate holder;" and the nature thereof consists in certain improvements in the same, hereinafter shown and described, whereby photographs may be taken without the use of a darkened room.

In the accompanying drawing, which illustrates my invention, and in which corresponding parts are illustrated by similar letters, Figure 1 is an elevation of the case or holder. Fig. 2 is a vertical section. Fig. 3 represents the inner frame. Fig. 4 is a vertical section of inner frame. Fig. 5 illustrates the plate-holder.

The apparatus consists essentially of a small case-holder, which I term the "heliopictor" and designate A in the drawing. The slide indicated by letter B has a pane of yellow glass, *a*, and the depth of the heliopictor is accommodated to the size of the lens and of the camera, so that the larger the photograph the deeper the case must be.

The instrument can be arranged for all cameras and lenses that are used. In it there is placed a removable glass frame, C, which may also be made of bituminous wood or india-rubber, and the back side of which is covered to its quarter part by an upright wall, *c*. The frame is covered by a dull polished focus-glass, *s*, the dull side below. Between the said focus-glass and the frame, when the latter is made of bituminous wood or india-rubber, there is inserted a packing of soft rubber, *e*; but if the frame is of glass, packing is not wanted, because two focus-glass plates close hermetically together. If the glass rests upon the frame, to which it is pressed by the springs *x*

on the cover D of the plate-holder, which also has a small yellow plate, *d*, there is a perfect hermetical locking, and the van for the silver-bath is ready, the bottom of which forms the glass itself that is to be impregnated with iodide of silver. This van is like a half-covered cup. To bring the solution of silver into the apparatus, there is on the side a round hole, *i*, that corresponds exactly with a hole, *i'*, in the frame C. This aperture *i* is closed by a slide, *k*, placed in a suitable recess or slot in the side of the case, it being held down by the spiral spring *l* and raised by the handle *f*. In the aperture *i* is tightly fitted a rectangular pipe, E, with a cock, *g*, upon which a little glass funnel, *h*, is placed. When the pipe is put in the aperture the slide *k* is raised and held up by the inserted pipe, and the aperture is closed the instant the pipe is removed. The slide B is raised by the thong *b*, and it is held when closed by a bolt or button, *b'*. *m* indicates a spring to hold the glass plate *s*.

To take a photographic picture with the heliopictor, the following processes should be observed: First, the blind or dull focus-glass *s* is put upon the frame C and fixed by the spring *m*; the instrument is inserted in the camera, and the sliding portion of the camera moved until the image on the ground glass is at its greatest distinctness. Second, the heliopictor is taken from the camera and the plate *s* removed. Third, a clean plate of mirror-glass, of convenient size, is then dipped in water, and a solution poured thereon, consisting of distilled water, eight hundred grams; fresh twirled albumen, twenty-five grams; glacial acetic acid, ten drops; iodide of potassium, one-half gram. The plate is then dried. Such plates may be prepared and kept ready for use. Iodized collodion is poured on the plate in the usual manner. When the collodion drying on the lower edge is of the softness of butter, the plate is placed with its collodionized side upon the frame C. The cover H is then closed and fastened by the bolts or buttons *o*, the plate being pressed to the frame by the springs *x*, and the instrument placed in a vertical position. Fourth, the pipe E is inserted in the hole *i*, the spring-slide *k* being drawn up. A solution of nitrate of silver (one nitrate of silver, ten distilled water, one drop nitric acid) is

poured in the funnel *h*, by means of a qualified graduated measure, to fill the space within the frame nearly to *n*. The faucet *g* is then closed and the case quickly turned, so that the yellow plate *a* is up, and the solution of silver will run at once over the collodionized glass plate. A motion of the case for about two minutes causes the formation of a white coating of iodide of silver. The process is controlled by the yellow plate *a*. If the liquid does not run down the apparatus is placed in a vertical position, the pipe *E* turned down, the faucet opened, and the solution of silver runs out, and may be returned to the bottle through a bibulous filter of paper. The pipe is then withdrawn and the spring-slide *k* is closed. Fifth, the heliopictor is now placed again in the camera, the slide *B* drawn up, and the object properly exposed. Sixth, when sufficiently exposed the object is again covered, the slide *B* returned, the plate-holder *H* is removed, the spring-slide *k* is raised, and another pipe provided with faucet and funnel inserted in the aperture *i*, as before. The liquid for developing the picture (as a solution of sulphate of peroxide of iron) is then poured in to same extent as before. The case is then laid horizontally, so that the liquid flows over the plate, the light being controlled by means of the yellow plates *a* and *z*. When sufficiently developed, the case is again placed vertically, the pipe turned down, and the developing liquid let out. Water is then poured in for the purpose of cleaning the plate, and afterward

poured out. Seventh, the plate-holder is then removed, and the plate taken out to clean. Then apply hyposulphide of soda, wash the plate with clean water, and, when perfectly dry, varnish it. Eighth, when the plate is taken from the frame the latter is cleaned with water and replaced in the case. Each case should have two inserting frames for readily changing. The operation is by daylight.

The apparatus is peculiarly adapted to taking landscapes, and to scientific purposes.

The preparation of the plate with albumen before it is collodionized must not be forgotten, for without this precautionary measure, the collodion will not properly adhere to the plate.

Having thus described the construction and operation of my invention, I claim and desire to secure by Letters Patent of the United States—

1. The frame *C*, glass *s*, rubber *e*, and cover *D*, provided with springs *x*, combined together as described.

2. The holder *A*, provided with the hole *i*, pipe *E*, slide *k*, and frame *B*, combined together as described.

3. The frame *C*, in combination with the subject-matter of the preceding claim.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

MED. DR. S. TH. STEIN.

Witnesses:

F. WIRTH,

C. W. STOCLEY.