G. S. Knapp,

Camera Stand.

No. 94,120. Patented Aug. 24. 1869.

Fig. 2.

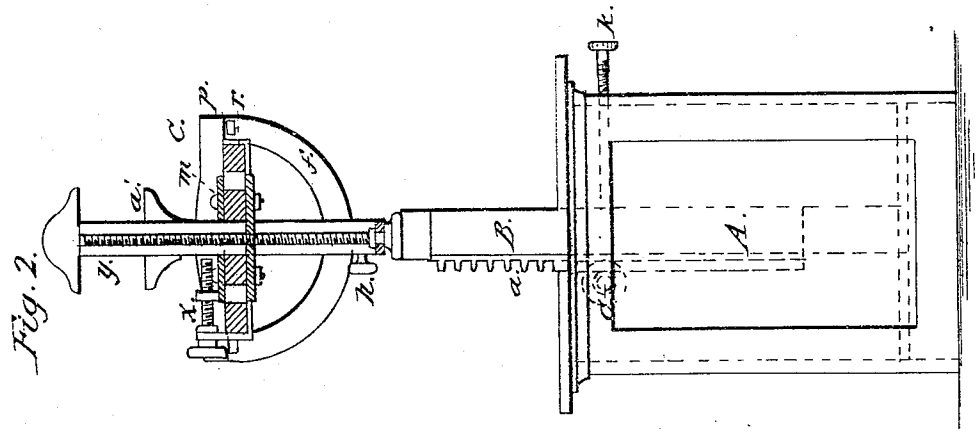


Fig. 1.

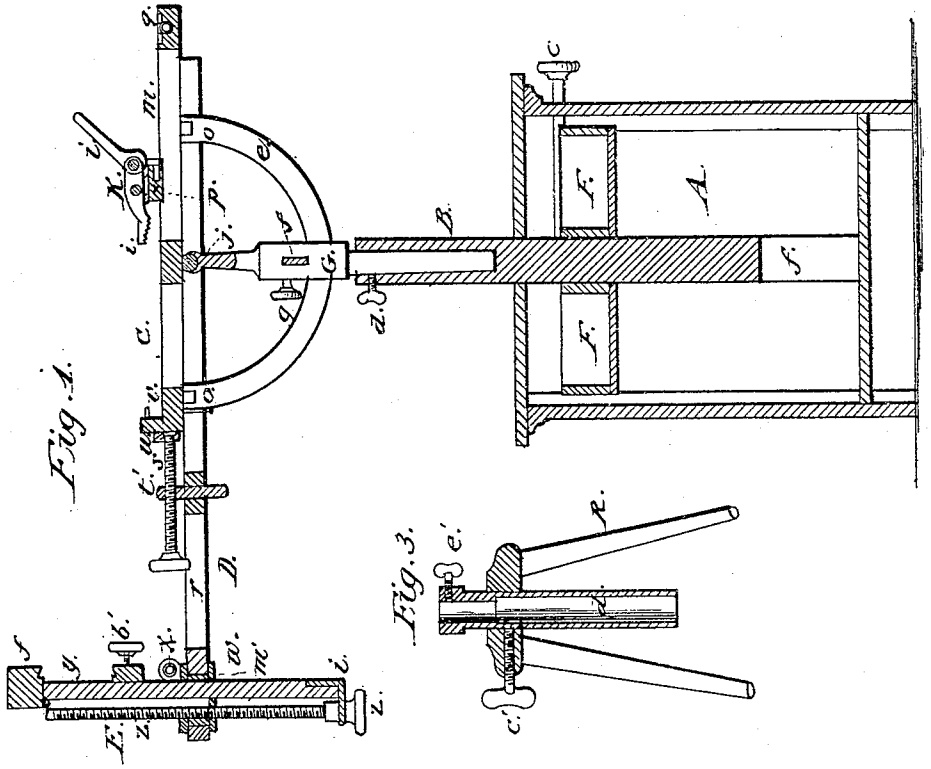


Fig. 3.

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GEORGE S. KNAPP, OF WINONA, MINNESOTA.

Letters Patent No. 94,120, *dated August* 24, 1869.

PHOTOGRAPHIC CAMERA-STAND.

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, GEORGE S. KNAPP, of Winona, in the county of Winona, and State of Minnesota, have invented certain new and useful Improvements in Stands for Photographers and others; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable those skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to camera-stands for photographers; and consists in a novel manner of constructing and arranging the same, so as to render the instrument capable of various adjustments and inclinations, as hereinafter described; in providing this adjustable frame with a rack or frame to hold pictures while being copied; and in mounting the whole upon a cupboard or case, to contain additional instruments, &c.

In the drawing—

Figure 1 is a longitudinal vertical section through my stand, on the line *x x* of fig. 2;

Figure 2 is a cross-section of the same, on the line *y y* of fig. 1; and

Figure 3 is a vertical section through the centre of a tripod, upon which the adjustable stand is placed for field-use.

In constructing my apparatus, I provide a cupboard or closet, A, and make a hole in its top of the proper size to admit a post or standard, B; and below, and on opposite sides of this hole, I secure the two parallel, vertical guides or ways *f*, as shown in fig. 1.

Through the hole in the top of the cupboard, I insert the post B, running between the guides *f*, and provide it on one side with a rack, *a*, meshing into a pinion, *c'*, on the inner end of a horizontal shaft, *c*.

The outer end of the shaft *c* projects outside of the cupboard, and is provided with a hand-wheel, by turning which the pinion *c'* is operated, and the post B raised or lowered.

Through one side of the cupboard, I insert a rod, K, extending in to the post B, and provided for a portion of its length with a screw-thread, running in a stationary nut, so that by turning this rod, its inner end may be forced against the post, and thus lock the latter in place.

I next construct a stand or frame, C, mounted upon a rod or standard, G, and insert the lower end of this rod into a hole in the top of the post or rack-bar B, as in fig. 1.

The manner of connecting the frame C to the rod G is clearly shown in fig. 1; the frame having secured to its under side, at the middle, a ball, *i*, and the upper end of the rod having a corresponding recess, into which the ball is set, thus supporting the frame, but allowing it to be turned and tipped in any direction upon the ball as a pivot.

To provide for locking the frame C in any of the required positions, I take two semicircular bars, *e* and *f*, and pass them at right angles to each other through slots in the post or rod G, and hinge their ends to the under side of frame C, as shown, and, in the rod G, I locate two set-screws, *g* and *h*, each of which bears against one of the said bars, so that after adjusting the table as desired, it may be fastened rigidly by setting up the screws *g* and *h*, and thus clamping the curved bars.

On the front end of the frame C, I form a raised ledge, and place on its rear side one or more points or projections *v*, under which the front edge of the camera is engaged. I also locate on or across the frame C, a sliding bar, *p*, having pivoted on it a lever, *k'*, to the rear end of which is pivoted a cam-lever, *t*, the lower side of this lever, *t*, bearing on a pin projecting from a spring, *m*, which latter is secured to the under side of bar *p*, between it and the frame C.

The camera being placed upon the frame C, with its front edge under or against points *i*, the bar *p* is shoved forward until the front end of lever *k'* engages over the rear edge of the camera, and then the lever *t* turned down, thus locking the lever down, and at the same time forcing the spring *m* down, and clamping the bar *p* in place, and securing the instrument rigidly to the frame C.

At one end of the frame C, I locate a spirit-level, *q*, by which to adjust the frame.

In the upper part of the cupboard A, I locate drawers F, to contain tools, chemicals, &c.

In this manner, I produce a very strong and simple stand, to which the camera may be secured, and then raised, lowered, turned, tipped, or otherwise adjusted, as occasion requires.

For the purpose of holding pictures to be copied, I provide a detachable frame or rack, D, having its side-rails, *r*, passed through guides or blocks, which are secured to the under side of the frame C.

This frame D may be adjusted by means of a thumb-screw, *s*, one end of which is connected to the frame C, this screw running through a stationary stud, *t'*, on frame D, as shown in fig. 1.

At the outer end of the frame D, I place a block, *m'*, moving in a slot which extends across the frame, and which may be adjusted in said slot by means of a screw, *x*, shown clearly in figs. 1 and 2.

Through the block *m'*, I make an opening and insert a vertical bar, *y*, which may be moved up or down through the block, by turning a screw-rod, *z*, provided for the purpose.

On the bar *y*, I place a movable block or jaw, *a'*, pro-

vided with a set-screw, *b'*, by which it may be fastened at any point on the bar; and on the upper end of the bar, I form a head, *f'*, with a projecting lip or face.

The picture to be copied is placed on the front of the bar *y*, with its upper edge engaged under head *f'*, and the clamp *a'* is shoved up against its lower edge, and fastened by the set-screw, thus fastening the picture in an upright position in front of the instrument.

The screws *x* and *z* are turned to adjust the picture to the exact position required.

When the frame D is not required for use, the nut *t'* is removed, and the frame withdrawn from the guides or blocks.

When my apparatus is to be used out of doors or in the field, I place the adjustable frame C upon a tripod, R, shown in fig. 3.

This tripod is provided with an adjustable thimble or tube, *d*, into which the standard G is set, and fastened by a thumb-screw, *e'*, the tube *d* being raised as desired, and fastened by thumb-screw *c'*, shown in fig. 3.

In this manner, I produce a stand capable of universal adjustment, and still of great simplicity.

By slight variations of the devices for clamping the instruments, I can adapt my stand to the use of surveyors, astronomers, and similar purposes, as well as for photographers.

Having thus described my invention,

What I claim, is—

1. The frame C, provided with the ball *i*, bearing in the socket *j* of post G, and having the hinged segments *e* and *f*, arranged as described.

2. The detachable and adjustable frame D, provided with the picture-holder *y*, having the clamps *f'* and *a'*, arranged as described.

3. The combination of the sliding bar *p*, with its clamp *k'*, cam-lever *t*, and spring *m*, all arranged to operate in connection with the points *i*, substantially as described.

4. The combination of the cupboard A, adjustable standard B, and frame C, when arranged as set forth.

5. The bar *y*, made adjustable both vertically and laterally, on the frame D, and carrying the stationary head *f'* and adjustable head *a'*, all arranged to operate as described.

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Witnesses:

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