J. W. Campbell,

Photographic Printing Frame,

No. 57,083. Patented Aug. 14, 1866.

Fig: 1.

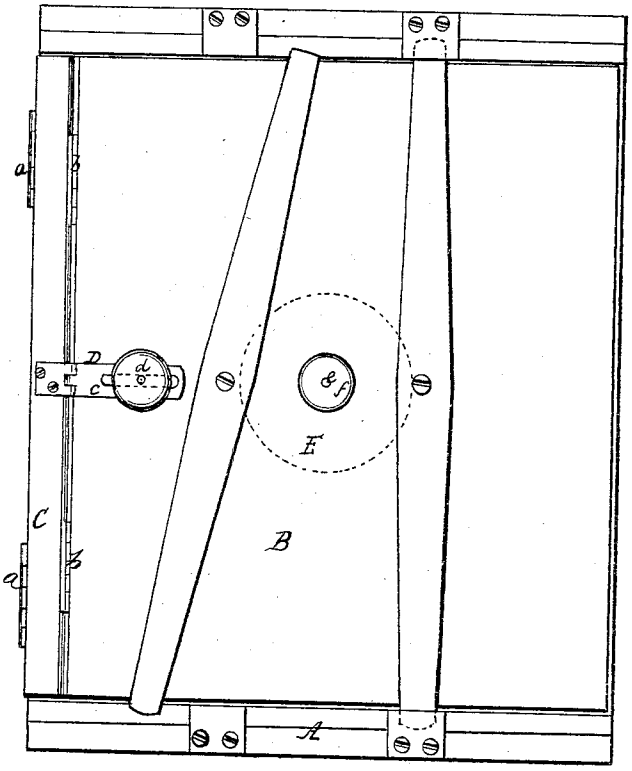
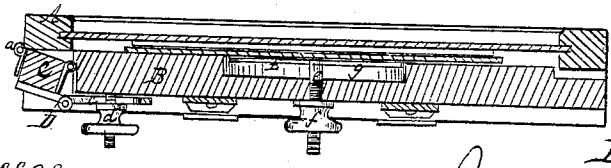


Fig: 2.



Witnesses:

Inventors:

J. W. Campbell

Munn & Co Attys.

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

J. W. CAMPBELL, OF NEW YORK, N. Y.

IMPROVEMENT IN PHOTOGRAPHIC-PRINTING FRAMES.

Specification forming part of Letters Patent No. **57,083,** dated August 14, 1866.

To all whom it may concern:

Be it known that I, J. W. CAMPBELL, of the city, county, and State of New York, have invented a new and useful Improvement in Photographic-Printing Frames; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a back view of this invention. Fig. 2 is a transverse vertical section of the same.

Similar letters of reference indicate like parts.

This invention refers to a printing-frame which is intended particularly for the purpose of printing on plates of porcelain, glass, or other fragile material.

The invention consists in the arrangement of a pad, diaphragm, or piston of india-rubber or other suitable material, in combination with a cavity in the back of the frame, and with an adjusting-screw, in such a manner that, by applying said pad, diaphragm, or piston to the back of the plate and turning the adjusting-screw, the atmospheric pressure is caused to act on said plate and to hold it firmly in position until the printing operation is completed.

It consists, further, in the arrangement of a double-hinged section, in combination with the back of the frame, in such a manner that said back can adjust itself readily to plates of different thickness.

It consists, finally, in the application of a lock, in combination with the double-hinged section and back of the frame, in such a manner that said section can be made rigid with the back when the same has been set to correspond to the thickness of a certain plate on which a picture is to be printed.

A represents a photographic-printing frame, made of wood or any other suitable material, and provided with a back, B, which is connected to the frame by means of a double-hinged section, C. This section is attached to the frame by means of hinges *a*, and to the back by means of hinges *b*, and the hinges *b* are placed in a reverse position to the hinges *a*, as clearly shown in the drawings, so that the back can readily accommodate itself to plates of different thickness.

In order to render the back B rigid with the strip C a lock, D, is applied, which consists of a slotted plate, *c*, and a set-screw, *d*. The slotted plate is hinged to the strip C, and the set-screw *d* screws in the back, as shown.

After the back has been adjusted in the desired position the set-screw *d* is turned down and the back is firmly held in position, so that the same cannot change spontaneously.

The plate on which a picture is to be printed is secured to the back B by means of a pad, E, of india-rubber cloth or other flexible and elastic material. This pad is connected to a screw-rod, *e*, and a nut, *f*, on the outside of the back serves to draw the same down into a cavity, *g*, in the inner surface of the back.

If the pad is slightly moistened and applied to the plate and the nut is turned so as to draw the center of said pad down in the cavity *g*, a vacuum is formed between the plate and the pad, and the plate is firmly held in place by the action of the atmospheric pressure.

It must be remarked that, instead of the pad E, an elastic diaphragm or an air-piston might be used, although the pad is easiest made and least troublesome in the operation. By the atmospheric pressure which is thus used to hold the plate to the back a uniform pressure is exerted on said plate, and all danger of breaking crooked plates is avoided.

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

1. Holding the plate to the back of a photographic-printing frame by atmospheric pressure, substantially as and for the purpose described.

2. The double-hinged section C, in combination with the back B and frame A, substantially as and for the purpose set forth.

3. The lock D, in combination with the double-hinged section C and back B, constructed and operating substantially as and for the purpose described.

The above specification of my invention signed by me this 8th day of November, 1865.

J. W. CAMPBELL.

Witnesses:

C. L. TOPLIFF,

I. M. COVINGTON.