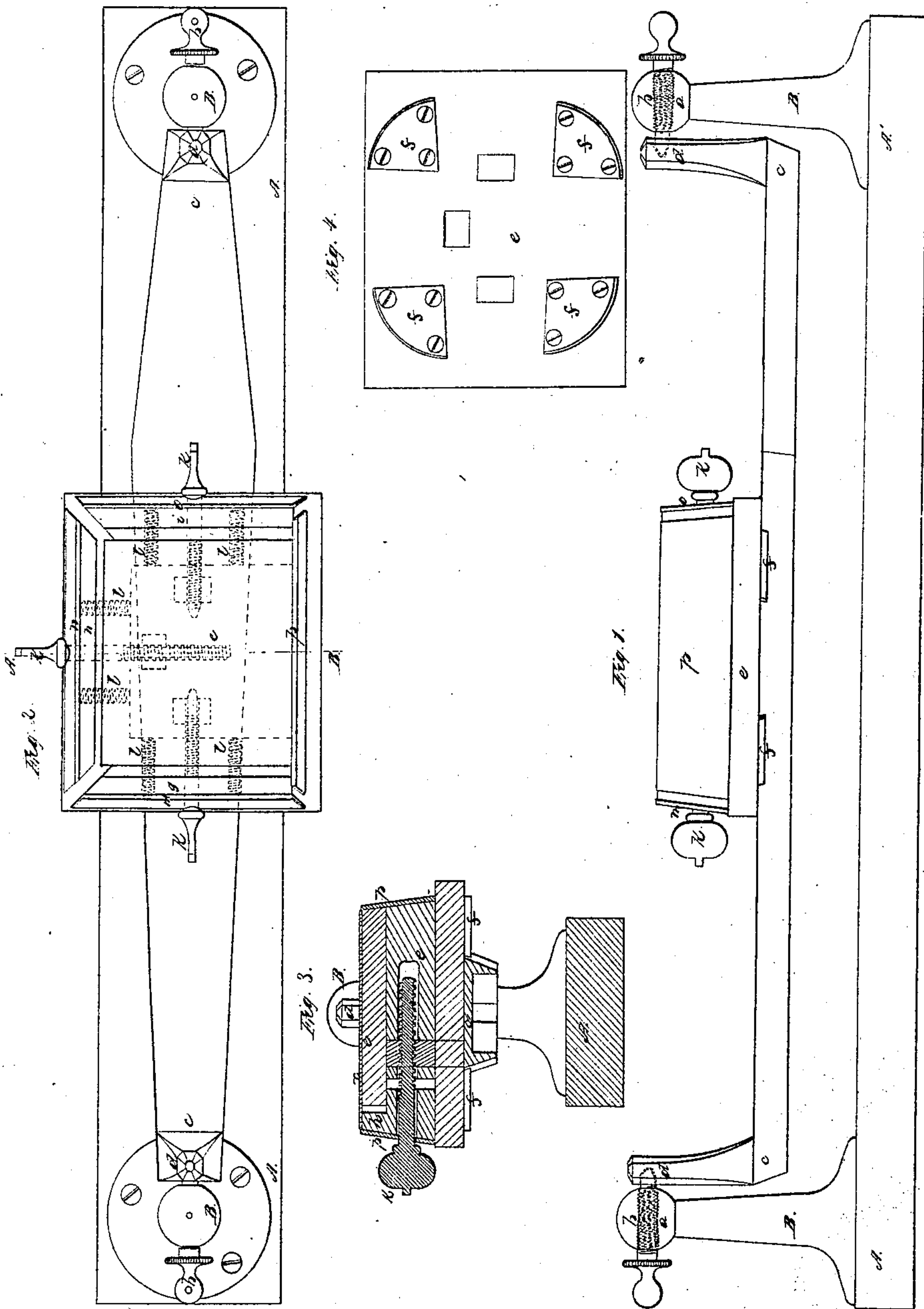


Southworth & Hawes,
Daguerreotype-Plate Holder,

N^o 4,573.

Patented June 13, 1846.



UNITED STATES PATENT OFFICE.

ALBERT S. SOUTHWORTH AND JOSIAH J. HAWES, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR HOLDING PLATES FOR POLISHING.

Specification forming part of Letters Patent No. 4,573, dated June 13, 1846.

To all whom it may concern:

Be it known that we, ALBERT S. SOUTHWORTH and JOSIAH J. HAWES, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful apparatus for holding the plates used in the photographic art and by engravers and such metallic or other kind of plates as required to be held firmly during the process of polishing their surfaces, which apparatus we call the "self-regulating suspension plate-holder;" and we do declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein we have set forth the nature and principles of our said invention, by which it may be distinguished from others, together with such parts as we claim and desire to have secured to us by Letters Patent.

Metallic plates have heretofore during the process of polishing their surfaces been held down upon blocks or bed-pieces by clamps fitted round the edges of said blocks and which come over and bear down upon the top surfaces of the plates. This arrangement materially obstructs the process of polishing and frequently injures the buffing-sticks, which are covered with leather or cloth or some other similar substance. It has long been an object with those who use and those who polish plates to obviate these defects and also to suspend the plate-holder or block so that when touched by the polishing-tools the plate on the holder shall adapt itself oppositely and flatly to such tools. These results are completely effected in our new apparatus, in which the block or plate-holder is made with three adjustable sides, which, with the the back side of the block, are faced with metallic or other suitable plates, and all of which latter plates are set at an obtuse angle with the top surface of the block or plate to be polished. The tops of these side and back plates set angularly, as described, and project up sufficiently above the top surface of the block to bite or bear against the four edges of the plate to be polished, taking in only about half the thickness of said plate from the bottom, so that when the three adjustable side plates are screwed up against the edges of the plate on the block (as will be explained in the se-

quel) the top surface of said plate will be entirely free from all obstructions to the operations of the polishing-tools. In order to have the plate adjust itself, as it were, to the faces of the polishing-tools when touched by them, the block on which the plate is confined, as above stated, is arranged so as to be easily adapted to and confined on a suspended bar which vibrates freely on its pivots or supports when the polishing-tool is applied to the plate.

The figures of the accompanying plate of drawings represent our new plate-holding apparatus.

Figure 1 is a front elevation of said apparatus. Fig. 2 is a plan, the plate to be polished being removed and the side bearing-plates unscrewed, some of the hidden parts being shown in this figure by dotted lines. Fig. 3 is a transverse vertical section taken in the plane of the line A B, Fig. 2.

A' A' is a wooden platform, which may be screwed or otherwise secured to a bench or table.

B B are two metallic standards, which are firmly secured at their bases to the platform A A, near each end of the same.

In the tops of the standards B B suitable female screws *a a* are formed, in which the male screws of the pivots *b b* work in the usual manner and as shown by dotted lines in Fig. 1. From the ends of these pivots *c c*, working in the standards B B, as described, is suspended the bar *c c* by means of its upright arms *d d*, arranged at each end of said bar, which arms have suitable holes in their sides near their tops, in which the pivots *b b*, fit, as shown in Fig. 1, so that the bar *c c* may be vibrated freely when any force is applied to it. This bar *c c* supports the block *e*, Fig. 2, on which the plate to be polished is confined, and for this purpose said bar is made of the wedging form shown in the plan, Fig. 2, and has its sides beveled inward, as shown in section in Fig. 3, so as to form a semi-dove-tailed joint with the metallic cleats *f f f f*, screwed to the under side of the block *e*, as shown in Figs. 3 and 4. These cleats, four in number, are so arranged on the under side of the block *e* that it may be secured upon the bar *c c* in two positions, so as to allow the plate to be rubbed or polished in two directions. This arrangement is shown in Fig. 4,

which is a detail view of the under side of said block, and will be readily understood by inspection of said figure.

The block *e* is made with three adjustable sides *g h i*, which are adjacent to each other and fit together when screwed up against the block *e*, as will be understood by inspection of the plan, Fig. 2. These sides are shaped in section so as to slide in and out from the block *e*, as shown in Fig. 3, or in any other suitable manner. The adjustment or movement of these sides *g h i* is effected by thumb-screws *k k k*, which pass through said plates and work in proper female screws in the three sides of the block *e*. When these thumb-screws are turned back for the purpose of disengaging the plate from the block, the sides *g h i* are forced outward by the spiral springs *l l l l l*, which bear against the inner faces of the sides *g h i* and the faces of the block *e* opposite to them, the arrangement of said springs being as shown in Fig. 2 by dotted lines. The top faces of the sides *g h i* are on a level with the top face of the block *e*; but their exterior sides are faced each with a metallic plate *m n o*, which plates project above the top face of the block any distance less than the thickness of the plate to be held and polished, generally about half of said thickness. These plates *m n o*, with the stationary back plate *p*, are set at an angle somewhat obtuse with the face of the block *e* or with the plate *x*, Fig. 3, to be held on the same, as hereinbefore specified, which arrangement of said plates may be effected by making the outer faces of the movable side pieces *g h i* (to which said plates *m n o* are attached) beveling or inclining outward from their tops, as shown in Fig. 3, or in any other desirable manner.

It will readily be seen from the above-described mechanical arrangement that when a plate *x* to be polished is placed upon the

block *e*, one edge of said plate being set against the top of the back plate *p*, which projects, as specified, above the block, if the adjustable inclined plates *m n o* are screwed, respectively, against each of the other three edges of the plate on the block, the said plate will be held firmly and its top surface will be entirely free from all obstructions to the operation of the polishing-tools.

Where the plate to be polished is very large, it may be advisable to divide the adjustable sides *o h i* and plates *m n o*, and also to divide the back plate and make its parts adjustable and operate all the segments or divided portions of the same each by a separate thumb-screw; but this will not produce any variation of the principle of this part of our apparatus. The points of the pivots which sustain the vibrating bar *c c* should be in the same horizontal plane with the face of the plate to be polished; but any little variation of the position of these parts above or below said plane will not materially affect the operation of the suspended bar.

Having thus described our apparatus for holding plates to be polished, what we claim therein as our invention, and desire to have secured to us by Letters Patent, is—

The supporting the plate-holder on a bar constructed for holding the same firmly, substantially as hereinabove described, and suspended by right-angular arms *d d*, projecting upward from its ends and hung upon pivots *b b*, as set forth, so that the top of the plate in the holder will adapt itself, as it were, to the face of the polishing-tools when touched by the same, as hereinabove set forth.

Boston, November 25, 1845.

ALBERT S. SOUTHWORTH.
JOSIAH J. HAWES.

Witnesses:

EZRA LINCOLN, Jr.,
LUTHER BRIGGS, Jr.