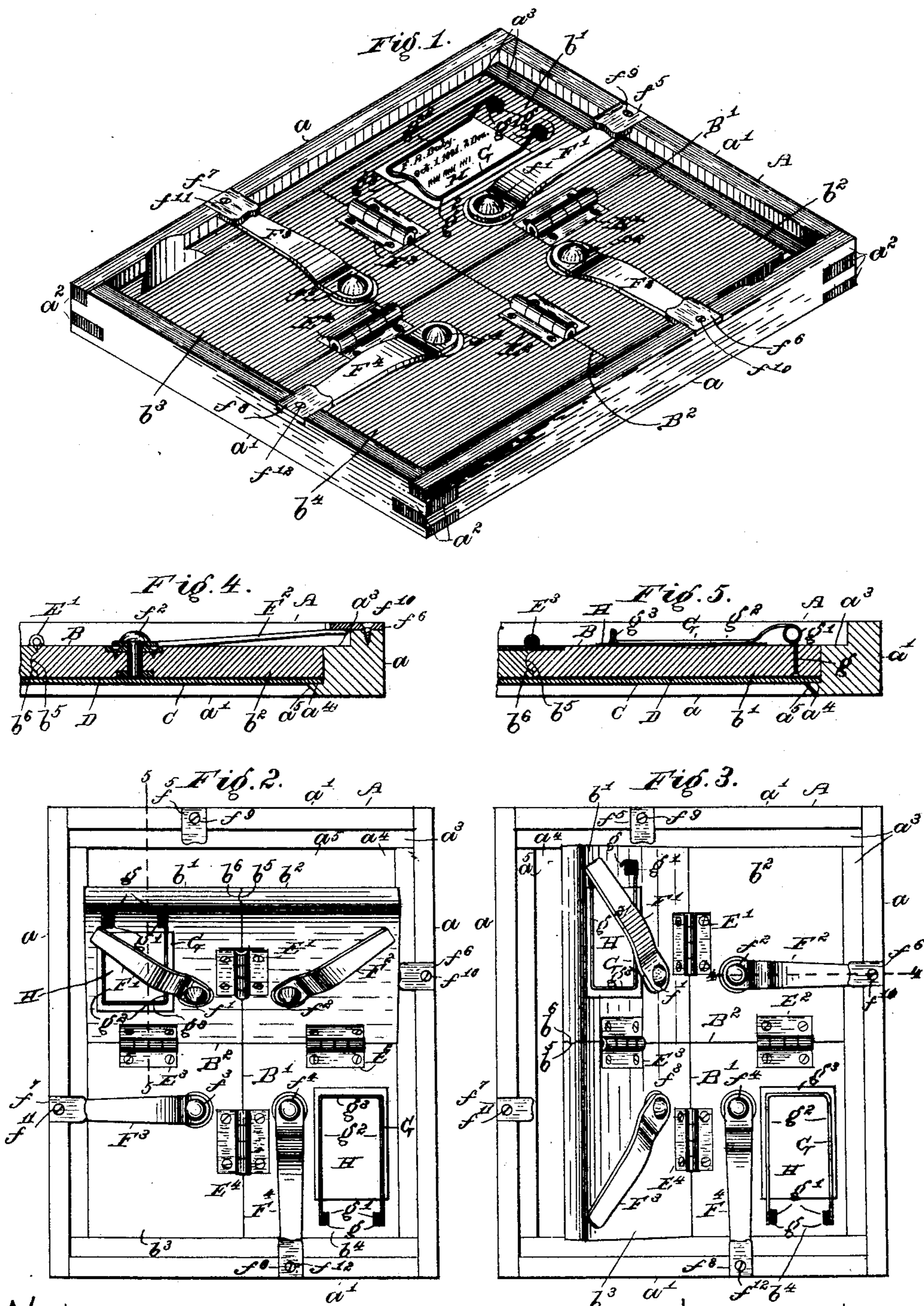


(No Model.)

F. A. DALY.
PHOTOGRAPHIC PRINTING FRAME.

No. 476,041.

Patented May 31, 1892.



Witnesses.
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UNITED STATES PATENT OFFICE.

FRANK A. DALY, OF LOWELL, MASSACHUSETTS.

PHOTOGRAPHIC-PRINTING FRAME.

SPECIFICATION forming part of Letters Patent No. 476,041, dated May 31, 1892.

Application filed November 9, 1891. Serial No. 411,276. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. DALY, a citizen of the United States, residing at Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a certain new and useful Improvement in Photographic-Printing Frames, of which the following is a specification.

My invention relates to photographic-printing frames; and it consists in the devices and combinations hereinafter described and claimed.

In photographic-printing frames the back is usually in two sections or flaps hinged to each other to allow the sections to be opened one at a time, corresponding sections of the print to be turned up from the negative and examined during exposure, and the sections of the print to be then replaced in their exact position on the negative. Sometimes the back is made in three such sections to facilitate an examination of all parts of the print. In either case one section of the back remains in position or closed while the other section or sections are opened. Where the back has more than two such sections, the lines of junction of the sections have heretofore been parallel with each other and held in their closed positions by springs or buttons.

In artistic photography it is not only necessary to be able to examine during exposure all parts of the print without lateral displacement thereof, but it is frequently highly desirable to compare the different parts of the print with each other—laterally-contiguous parts as well as vertically-contiguous parts—as to compare all the parts of the foreground with each other, or the parts of the background with each other or to compare the foreground with the background.

The object of the invention hereinafter described is to enable any half of the print to be examined whether the line of division between such halves be longitudinal or transverse, and also to enable a print to be made from a single negative as large as can be placed in the frame, or two prints to be made from two negatives and having one dimension in common with such large negative and another dimension which is one-half the other dimension of said large negative.

In the accompanying drawings, Figure 1 is

an isometric perspective view of a closed photographic-printing frame constructed according to my invention; Fig. 2, a reverse plan of the same, one half of the back, transversely, being open and the other half closed; Fig. 3, a plan of the same, one half of the back, longitudinally, being open and the other half being closed; Fig. 4, a section, as on the line 4 4 in Fig. 3, of the frame, back, negative or print, spring, and its pivot and catch; Fig. 5, a section on the line 5 5 in Fig. 2, of the frame, back, negative, print, memorandum paper or pad, and spring-clip.

The frame A is of the usual construction, being rectangular and formed of four strips, as of wood, mortised together at their ends at a^2 , the side strips a being usually longer than the end strips a' , as represented, and all of the strips being provided with two rabbets $a^3 a^4$, in the inner of which is arranged the negative C, resting upon the ledge a^5 . The print or sensitized paper D from which the print is made is placed against the back of the negative and smoothly and securely held against the same by the back B. The back B, instead of being divided into sections or flaps on lines parallel with the sides or ends of the frame in the usual manner, is divided on lines, one of which B' is parallel with the sides a and the other of which B^2 is parallel with the ends a' of the frame A, these lines B' B^2 crossing each other at right angles at the center of the back, thus dividing the back into four equal flaps $b' b^2 b^3 b^4$. The contiguous sides of the flaps are hinged to each other at $E' E^2 E^3 E^4$, so that the half $b' b^2$ or $b^3 b^4$ of the back B on either side of the line B^2 or the half $b' b^3$ or $b^2 b^4$ on either side of the line B' may first be opened or swung back from the print without disturbing the remaining half and allow the corresponding half of the print to be examined, and so that by repeating the examination and using first one and then the other of the lines B' B^2 as the dividing-line the ground and the sky or upper and lower parts of the print may be compared with each other at either side of the print or the different parts of the ground may be compared with each other or all the parts of the sky may be compared with each other, in order that the usual means may be resorted to for preventing overprinting of parts of the picture.

Usually where each flap or section extends the entire length or width of the back, such flap is held against the back of the print by a single leaf-spring pivoted at its middle, so that the free ends of said spring may be pressed toward the back and turned under catches secured to opposite sides or ends of the frame A, and I use as many separate leaf-springs $F^1 F^2 F^3 F^4$ as there are flaps, but each shorter than half the length or width of the back B, and pivoted at one end at $f^1 f^2 f^3 f^4$ (but otherwise in the usual manner) to one of the flaps $b^1 b^2 b^3 b^4$, the free end of each spring being adapted to be pressed toward said back and turned laterally under a catch $f^5 f^6 f^7 f^8$, secured on the rear of the frame by a screw $f^9 f^{10} f^{11} f^{12}$ in the usual manner. These springs $F^1 F^2 F^3 F^4$ are alternately arranged substantially parallel with side strips a and end strips a' of the frame, so that on each half of the back B, whether the dividing line be the line B' or the line B^2 , the springs, when in operative position, are substantially at right angles to each other.

It is obvious that if the springs were all parallel with each other when in use opening one half on the dividing-line B' or B^2 at right angles to said springs would leave the closed half very imperfectly secured and that the elasticity of the springs on said closed half would tend to raise the inner edge of said closed half from the print and to slide said closed half toward the opening of the back, and thus displace the print on the negative. The tendency of each spring is to raise the inner edge of the flap to which it is secured away from the print and to slide such flap inward; but the construction above described prevents the opening of any single flap without the opening of one of the next adjacent flaps. When one half $b^1 b^3$ of the back is open, as in Fig. 3, the springs $F^2 F^4$ on the closed half, if arranged parallel to each other and at right angles to the line of division B' , would raise the inner edge (or edge on said division-line B') out of contact with the print, and in so doing would cause the front outer edge of said half to slide away from the frame, said back turning on its rear outer edge as on a fulcrum and displace the print on the negative; but when the half $b^1 b^3$ is open the flaps of the other half $b^2 b^4$ are thereby prevented from swinging on each other and form, in effect, for the time being a single inflexible half or flap. Now by arranging the springs $f^2 f^4$ of said closed half, as shown, at such an angle to each other that an imaginary line connecting their free ends falls within an outer corner of said half the resultant pressure on the closed half will be the same as that of a spring pivoted between the pivots $f^2 f^4$ and engaging a catch placed on the frame between said springs and extending within said imaginary connecting-line.

To keep the closed flaps in the same plane with each other and to lessen the strain upon their connecting-hinges, the sides of the flaps

on the lines $B' B^2$ may be provided with beads b^5 and grooves b^6 , the bead on one flap fitting the groove of the contiguous flap and resisting the tendency of the flaps to be raised by the action of the springs secured thereto because the springs of two adjacent closed flaps tend to lift said flaps in arcs which are at right angles to each other, so that neither of said flaps can rise without lifting the other flap bodily as long as the bead on one flap remains in the groove of the other flap, this effect being of the same kind as is produced by the hinge connecting said flaps and having a tendency to prevent the leaves of the hinge from being twisted on each other in such a manner as to bend the pintle of said hinge.

It is possible in a printing-frame of the ordinary construction, having a back with two equal flaps and having a certain capacity to print simultaneously two pictures of half the capacity of the frame, and if the line of division of the back be at right angles to the line of junction of the negatives, the prints may be examined in the usual manner; but neither print can be removed from the frame without removing the back, and thereby displacing or removing the other print, while if the line of division of the back coincides with the line of junction of the negatives neither print can be examined without removing it from its negative. It is almost if not quite impossible to replace a print once removed from the frame exactly upon the negative.

In the frame above described two prints, each of half the capacity of the frame, may be simultaneously printed and each print may be examined in two sections, as well as in an ordinary two-flap frame, and either print may be removed, when sufficiently printed, without removing or displacing the other print.

It is quite common to paste strips of paper on the back of the frame on which to keep tallies of the prints made and to paste such strips one over others until the accumulation of paper is so great as to require it to be scraped or washed off. This practice keeps the frame in an untidy condition, the strips are inconveniently small and are covered and, in effect, destroyed by succeeding strips. I therefore secure to the back a spring-clip G, that shown being made of a continuous wire having legs g adapted to be driven into the back and having coils g' to increase the elasticity of the clip, and between said coils bent into fingers or parallel parts g^2 , arranged to press upon a pad H of paper and to clamp said paper against said back B, said fingers being connected by a portion g^3 of the wire bent upward, as shown, to be grasped to raise said fingers g^2 , to insert the pad H, or to remove the same or any of the leaves thereof. On the leaves of the pad H may be written the name of the person ordering the prints, the number ordered, the date of the order, and other desired memoranda, in addition to

the tally, and the leaf may subsequently be filed away for future reference.

I claim as my invention—

1. In a photographic-printing frame having
5 a back divided on intersecting lines into flaps, each hinged to the laterally-adjacent flaps and capable of being opened on either of said dividing lines, as and for the purpose specified.

2. The combination of the frame, the back,
10 divided transversely and longitudinally into flaps, hinges connecting adjacent flaps, and springs each adapted to hold one of said flaps closed, as and for the purpose specified.

3. The combination of the frame, the back
15 divided on intersecting lines into flaps, hinges connecting adjacent flaps, and springs, each secured to one of said flaps, and catches se-

cured on said frame to engage said springs and hold said flaps closed, as and for the purpose specified.

4. The combination of the frame and the
back divided on intersecting lines into flaps, each hinged to the adjacent flaps, each inner edge of each flap being provided with a tongue or groove to engage a corresponding groove
25 or tongue on the adjacent edge of the next flap, as and for the purpose specified.

In witness whereof I have signed this specification, in the presence of two attesting witnesses, this 6th day of November, A. D. 1891. 30

FRANK A. DALY.

Witnesses:

ALBERT M. MOORE,
MYRTIE C. BEALS.