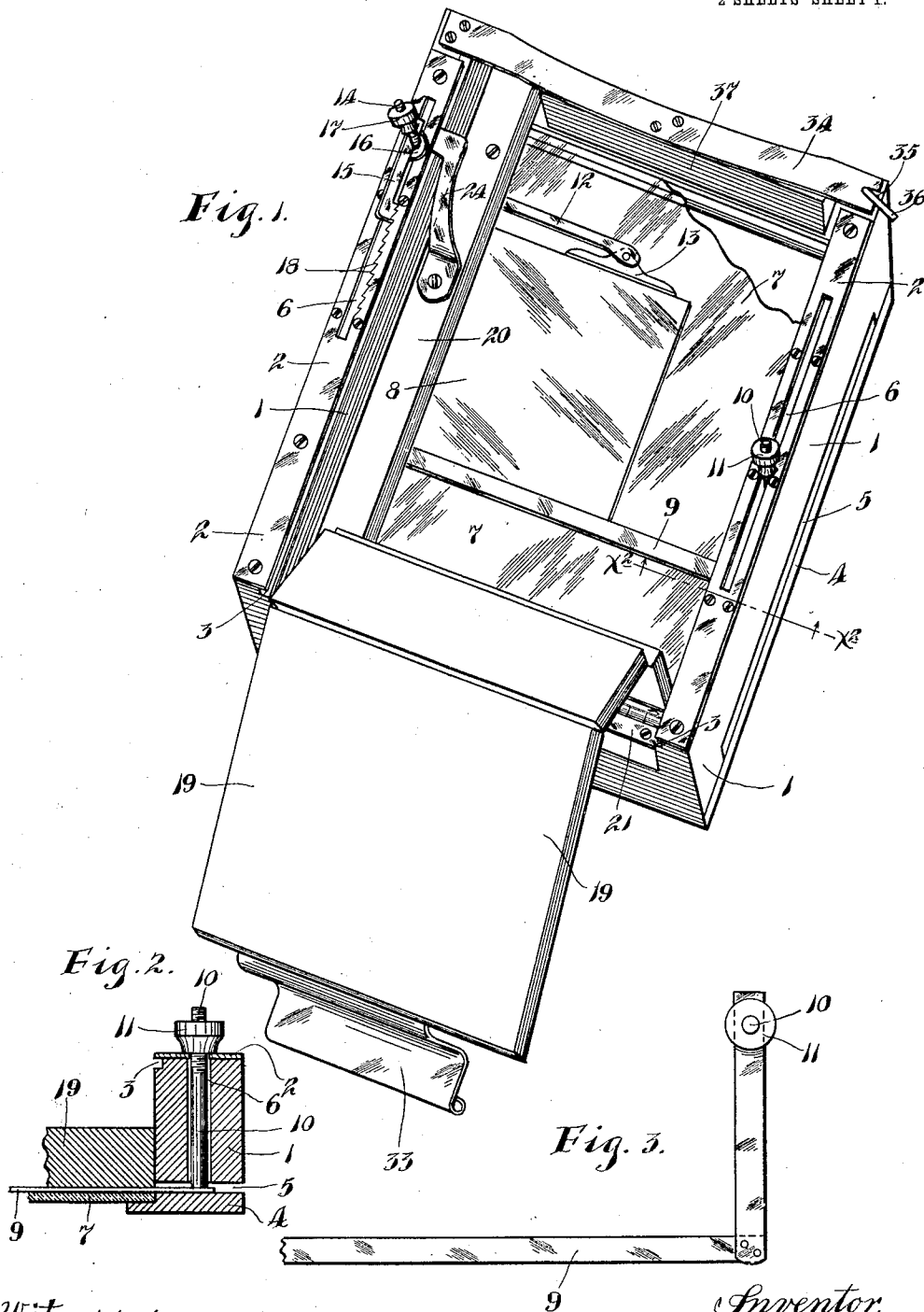


H. A. ANDERSON.
 PHOTOGRAPHIC PRINTING FRAME.
 APPLICATION FILED MAR. 30, 1912.

1,050,511.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.



Witnesses.
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 Haldor A. Anderson.
 By his Attorneys.
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2 SHEETS—SHEET 2.

Fig. 4.

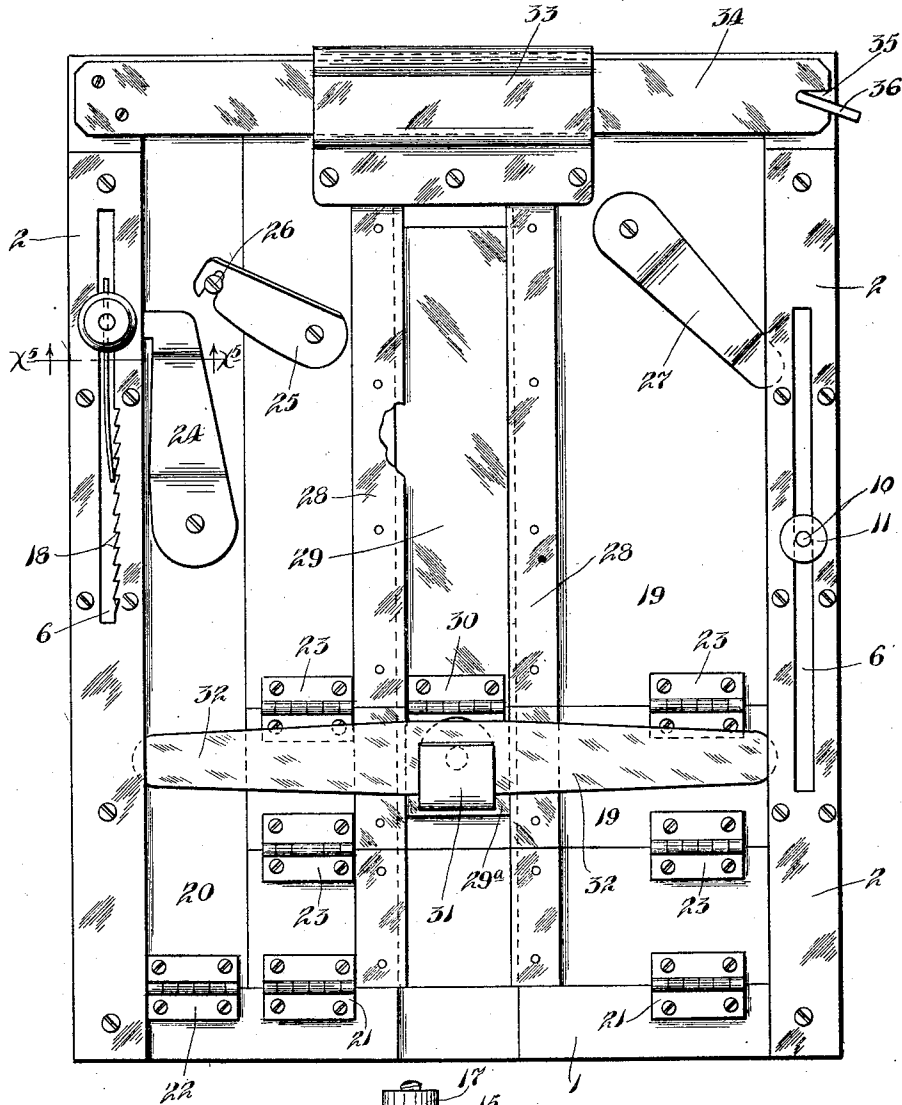
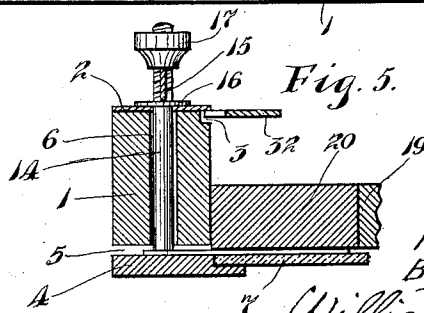


Fig. 5.



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UNITED STATES PATENT OFFICE.

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PHOTOGRAPHIC-PRINTING FRAME.

1,050,511.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed March 30, 1912. Serial No. 687,322.

To all whom it may concern:

Be it known that I, HALDOR A. ANDERSON, a citizen of the United States, residing at Ortley, in the county of Roberts and State of South Dakota, have invented certain new and useful Improvements in Photographic-Printing Frames; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention has for its object to provide an improved photographic printing frame, and to such ends, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a perspective view showing the improved printing frame, some parts being broken away. Fig. 2 is a detail in section on the line $x^2 x^2$ on Fig. 1; Fig. 3 is a detail in plan showing one of the negative holding devices removed from the frame; Fig. 4 is a plan view of the complete printing frame; and Fig. 5 is a detail in section on the line $x^5 x^5$ on Fig. 4.

This printing frame, like most printing frames, comprises a rectangular marginal frame proper indicated as an entirety by the numeral 1. On the tops of the sides of this frame 1, metal strips 2 are secured, and at their inner upper edges, the sides are rabbeted to afford clearance channels 3 directly underlying the inner edges of the said metal plates 2. To the bottoms of the sides of said frame 1, base strips 4 are rigidly secured at their ends, horizontal longitudinal slots 5 being formed between the said members 1 and 4. Vertical longitudinally extended slots 6 are cut through the metal strips 2 and the sides of the frame 1 and open into the underlying horizontal slots 5. A flat glass plate 7 is seated in the bottom of the rectangular frame 1 below the horizontal slots 5.

Negatives, either in the form of plates or

films, are adapted to be used in this printing frame, but in the drawings, the numeral 8 indicates what may be assumed to be a glass negative plate. The negative, as is customary, is directly applied against the glass face plate 7 and it is adapted to be held in position, primarily by two coöperating negative holding devices. One of these negative holding devices is in the form of a light L-shaped metal clamping bar 9, the longer leg of which extends completely across the face plate 7 and enters both of the slots 5, and the short arm of which is positioned in the right hand slot 5, is provided with a long trunnion 10 that projects upward through the right hand vertical slot 6, and at its threaded upper end is provided with a clamping nut 11. The slot 6 permits the clamping bar 9 to be longitudinally adjusted to any desired position in which it will overlap the lower edge of the negative and secured for any desired adjustment simply by tightening the nut 11. The other or co-operating negative clamping device is in the form of an arm or short bar 12 provided at its projecting end with a pivoted negative clamping head 13, and at its other end, secured to the lower end of a long trunnion 14 that projects upward through the left hand slot 6. The trunnion 14 is thus mounted for pivotal movements, and for lateral adjustments longitudinally of the printing frame, and the left hand slot 6. This latter adjustment permits the upper negative clamping device to be properly adjusted to the sides of any particular negative. The upwardly projecting threaded end of the trunnion 14 is formed with a diametrical perforation through which one end of a flat leaf spring 15 is projected. A washer 16 is interposed between the spring 15 and a clamping nut 17 on the extreme upper end of the said trunnion 14. The projecting end of the spring 15 is turned downward and works within the left hand slot 6. The spring 15 exerts a force on the trunnion 14 which tends to rotate the same in a direction to press the head 13 against the negative 8. Obviously when the trunnion 14 is adjusted in the slot 6, the spring 15 moves therewith, all the

while maintaining engagement with the said slots. When the clamping nut 17 is tightened, the trunnion 14 is clamped to the spring 15, but is all the while subject to the turning force produced thereon by the said spring. The left hand metal strip 2 at one edge of the slot 6 is preferably formed with ratchet-like teeth 18 that engage with the end of the spring 15 and serve to prevent the same from being accidentally moved toward the head end of the frame 1.

The clamping board of this improved frame, in itself, involves important novel features. It is made up of a multiplicity of parts, several of which are hinged together to afford a folding main clamping board 19, and another section 20, of which is extended at one side of the said main clamping board 19 at a right angle to or transversely of the joints of its sections, and is independently hinged to the frame 1. The clamping boards 19 and 20 are connected to the frame 1, respectively, by hinges 21 and 22. The sections of the said clamping board 19 are connected by hinges 23. The supplemental clamping board or bar 20 is provided with a pivoted spring acting retaining arm 24, the end of which is adapted to be engaged under the adjacent edge of the left hand metal strip 2. The upper section of the folding clamping board 19 is provided with a pivoted connecting hook 25, the hook-like end of which is adapted to be interlocked to a screw or headed stud 26 of the supplemental clamping board. Also, the upper section of said clamping board 19 is provided with a pivoted spring retaining arm 27, the free end of which is adapted to be engaged under the edge of the right hand metal strip 2. Laterally spaced longitudinally extended guide strips 28 are rigidly secured to the sections of the clamping board 19, and these strips are transversely severed on the lines of the joints between the sections of the said board. Also, the said guide strips 28 are laterally offset from the outer face of the said clamping board 19, so that they cooperate therewith to afford a guide channel in which works a joint stiffening bar 29—29^a. The sections 29—29^a are connected by a hinge 30. The lower section 29^a is very short as compared with the main section 29, and it is, as shown, provided with an over-turned ear 31, which serves as a finger piece for sliding the joint stiffening bar 29—29^a. A spring lock bar 32 is intermediately pivoted to the said section 29^a and its ends are adapted to be turned into and out of interlocking engagement with the inner edges of the metal strips 2. The spring tension of the said bar 32 and of the spring arms 24 and 27 yieldingly press the complete clamping board against the negative and printing paper. Preferably, the negative 8 is also held

at one edge by the supplemental clamping board or bar 20 which is applied against the same, as shown in Fig. 1. When this is done, the said bar 20 and the transverse portion of the bar 9 afford a two-gage surface, against which the sensitive paper may be set, always in accurate alinement with or in position on the negative.

When the joint stiffening bar 29—29^a is adjusted, as shown in Fig. 4, the folding main section of the clamping board is adapted to be turned outward on its upper hinge with its lower and intermediate section held in working position. When the said joint stiffening bar 29—29^a is moved downward so that its hinge 30 alines with the intermediate hinges 23, the lower section of the folding clamping board 19 will open outward on its intermediate hinge and the upper joint strip 29 will then stiffen the upper joint of the said clamping board. Again, when the said joint stiffening strip is moved downward so that its hinge 30 alines with the lower hinges 21, the three sections of the said board 29 will be locked in alinement with each other and the opening movement of the said clamping board will then be on the lower hinges 21. If, therefore, while the said parts are adjusted, as just stated, the main clamping board 19 is locked to the supplemental board 20 by the connecting hook 25, and the levers 24 and 27 are released, the entire and complete clamping board may be moved on the alined hinges 21 and 22. The numeral 33 indicates a spring latch plate secured to the upper or free edge of the folding clamping board 19 and engageable with the upper edge of the frame 1.

It is frequently desirable to use a vignette screen in connection with the negative and printing paper, and to hold such device in working position immediately over the negative, I provide a vignetter clamp, preferably comprising a spring bar 34, rigidly secured at one end to the upper end of one side bar of the frame 1, and at its other end having an open notch 35 that is detachably engageable with a turn button 36, pivotally applied to the upper end of the opposite side of said frame. To the intermediate portion of the spring bar 34 is secured a clamping block 37, which is directly engageable with the vignetter screen to clamp the same against the transverse upper bar of the frame 1.

What I claim is:

1. In a device of the kind described, the combination with a marginal frame having a transparent face plate, of a main folding clamping board made up of sections connected together and to said frame by hinges, and a supplemental clamping bar extending at one side of said main clamping board and transversely of the joints thereof.

2. In a device of the kind described, the combination with a marginal frame having a transparent face plate, of a main folding clamping board made up of sections connected together and to said frame by hinges, a supplemental clamping bar extending at one side of said main clamping board and transversely of the joints thereof, and independent means for holding said main clamping board and supplemental clamping bar in working position.

3. In a device of the kind described, the combination with a frame having a transparent face plate, of a jointed folding clamping board made up of sections connected together and to said frame by hinges, and a jointed stiffening bar seated on said jointed clamping board for sliding movements transversely of the joints thereof.

4. In a device of the kind described, the combination with a frame having a transparent face plate, of a jointed folding clamping board made up of sections connected together and to said frame by hinges, and a jointed stiffening bar mounted on said jointed clamping board for sliding movements transversely of the joints thereof, and a spring bar intermediately pivoted to said joint stiffening bar and having interlocking engagement with the sides of said frame.

5. In a device of the kind described, the combination with a frame having a transparent face plate, of a jointed folding clamping board made up of sections connected together and to said frame by hinges, and a jointed joint-stiffening bar mounted on said jointed clamping board for sliding movements transversely of the joints thereof.

6. In a device of the kind described, the combination with a frame having a transparent face plate, of a jointed folding clamping board made up of sections connected together and to said frame by hinges, a jointed joint-stiffening bar mounted on said jointed clamping board for sliding movements transversely of the joints thereof, and a spring bar intermediately pivoted to one section of said stiffening bar and having interlocking engagement with the sides of said frame.

7. In a device of the kind described, the combination with a marginal frame having transparent face plate, of a main folding clamping board made up of sections connected together and to said frame by hinges, a supplemental clamping bar extending at one side of said main clamping board and transversely of the joints thereof, and a joint-stiffening bar mounted on said jointed clamping board for movements transversely of the joints thereof.

8. In a device of the kind described, the combination with a marginal frame having transparent face plate, of a main folding

clamping board made up of sections connected together and to said frame by hinges, a supplemental clamping bar extending at one side of said main clamping board and transversely of the joints thereof, and a jointed joint-stiffening bar mounted on said joint clamping board for movements transversely of the joints thereof.

9. In a device of the kind described, the combination with a marginal frame having transparent face plate, of a main folding clamping board made up of sections connected together and to said frame by hinges, a supplemental clamping bar extending at one side of said main clamping board and transversely of the joints thereof, a jointed joint-stiffening bar mounted on said joint clamping board for movements transversely of the joints thereof, and a spring bar intermediately pivoted to one section of said joint-stiffening bar and having interlocking engagement with the sides of said frame.

10. In a device of the kind described, the combination with a marginal frame having a transparent face plate, of a main folding clamping board made up of sections connected together and to said frame by hinges, a supplemental clamping bar extending at one side of said main clamping board and transversely of the joints thereof, independent means for securing said jointed clamping board and said supplemental clamping bar to said frame, and for connecting the said two elements together, at will.

11. The combination with a rectangular printing frame having a transparent face plate and having slotted side bars, of co-operating negative holding devices having trunnions or stems independently and adjustably mounted in the slotted sides of said frame, and a clamping bar hinged to said frame and coöperating with said negative holders.

12. The combination with a rectangular printing frame having a transparent face plate and having slotted side bars, of co-operating negative holding devices having trunnions or stems independently and adjustably mounted in the slotted sides of said frame, and main and supplemental clamping boards independently hinged to said frame and arranged to close over the said negative holding devices.

13. The combination with a rectangular printing frame, of negative holding means comprising an arm having a trunnion pivotally and slidably mounted in a slot on one side of said frame, and a spring applied to said trunnion and re-acting against said frame, substantially as described.

14. The combination with a rectangular printing frame having a transparent face plate, and having intersecting horizontal and vertical longitudinal slots in one side,

of a negative holding arm having a trunnion
pivotally and slidably mounted in the inter-
secting slots of said frame, and a leaf spring
secured to the projecting end of said trun-
5 nion and having an end working in the ver-
tical slot of said frame, the said spring ex-
erting a force tending to force said arms
against said negative.

In testimony whereof I affix my signature
in presence of two witnesses.

HALDOR A. ANDERSON.

Witnesses:

BERNICE G. WHEELER,
HARRY D. KILGORE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
