

No. 664,665.

Patented Dec. 25, 1900.

S. McLAUGHLIN.

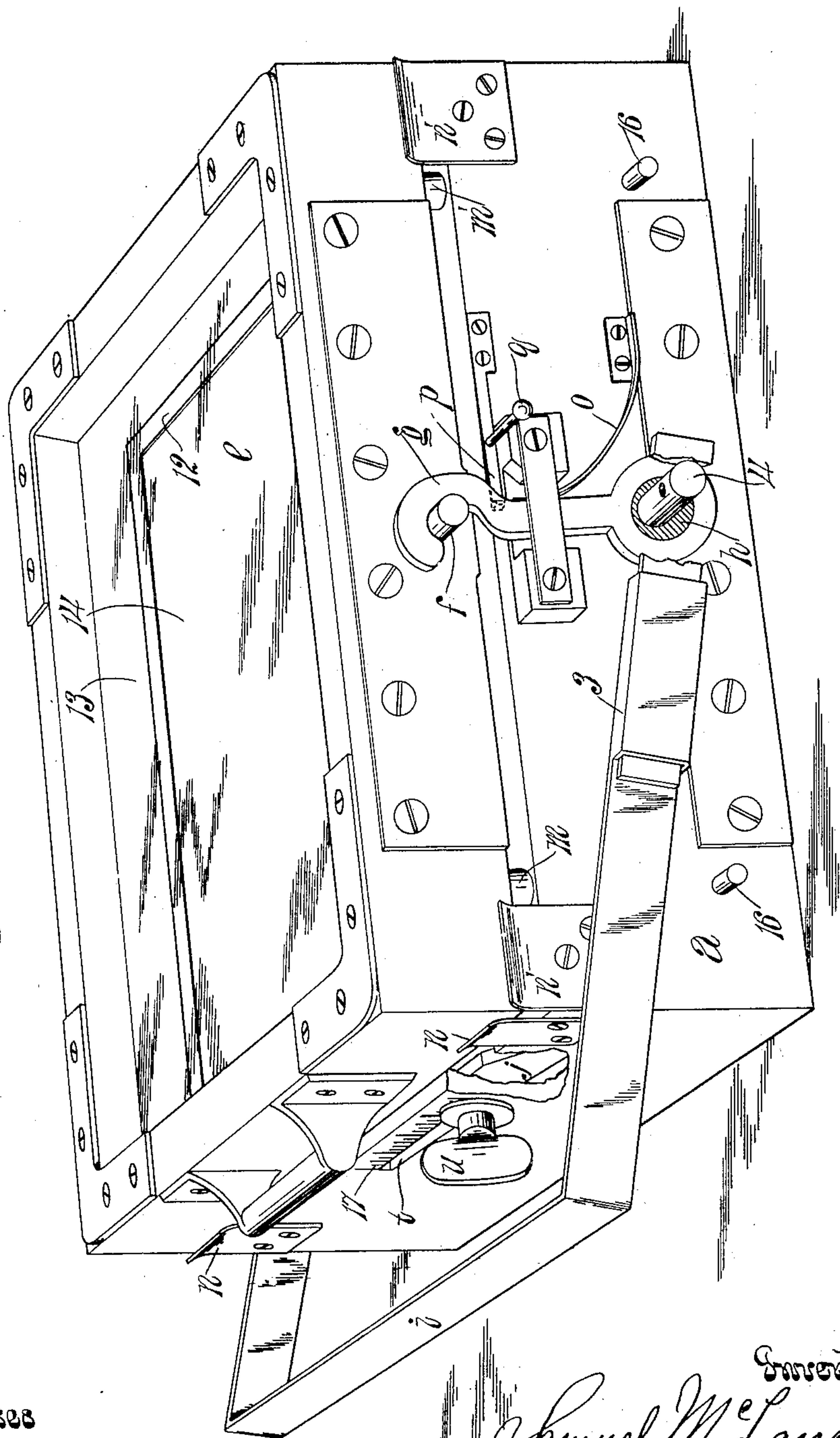
PHOTO-ENGRAVER'S PRINTING FRAME.

(Application filed July 31, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1



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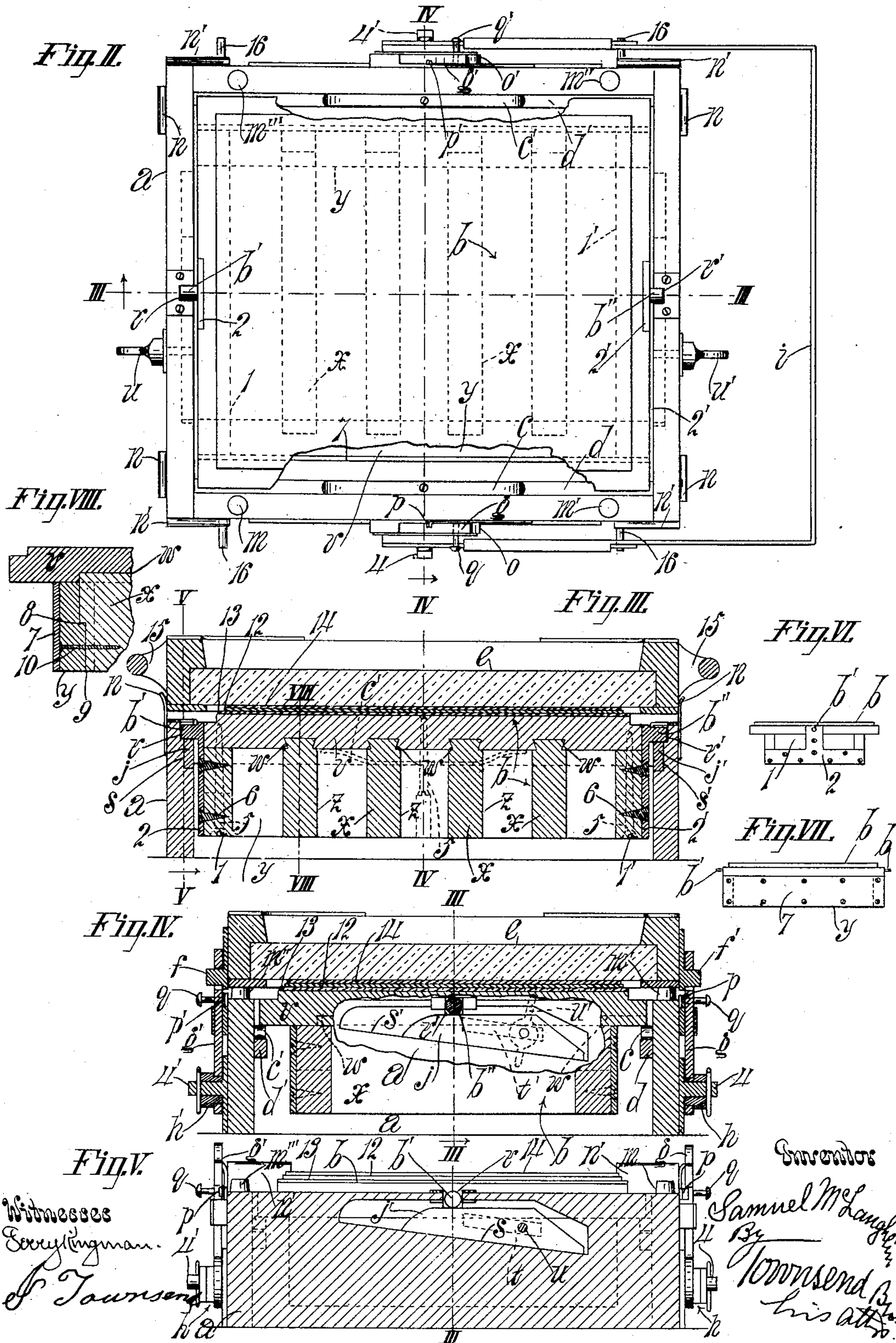
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(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

SAMUEL McLAUGHLIN, OF LOS ANGELES, CALIFORNIA.

PHOTO-ENGRAVER'S PRINTING-FRAME.

SPECIFICATION forming part of Letters Patent No. 664,665, dated December 25, 1900.

Application filed July 31, 1900. Serial No. 25,461. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL McLAUGHLIN, a citizen of Canada, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Photo-Engraver's Printing-Frame, of which the following is a specification.

This invention relates to improvements upon a contact printing-frame patented to myself and Alfred C. Moore December 22, 1896, No. 573,521.

One object of this invention is to provide a simpler printing-frame which requires less skill for its operation and can be operated with great rapidity and ease.

By my invention the surfaces of the negative, the plate, the bed, and the glass or transparent lid or cover are brought into parallel position instantly.

A further object of my invention is to provide a negative-holding bed of superior strength and rigidity and to hold the surface of said bed true and flat.

A further object of the invention is to provide ready means for adjusting the apparatus for use with different thicknesses of negative and plate.

My invention includes the various parts and combinations herein described and claimed.

The accompanying drawings illustrate my invention.

Figure I is a perspective view of my newly-invented photo-engraver's printing-frame with the lid locked in position upon a negative which rests on the plate to be engraved. Parts are broken away for clearness of illustration. Fig. II is a plan of the bed of the apparatus, the transparent lid being removed. Fig. III is a section on the line III III, Figs. II, IV, and V, with lid in place. Fig. IV is a section on line IV IV, Figs. II and III. A portion of the end of the bed is broken to expose the wedge which adjusts the bed trunnion or pivot. Fig. V is a fragmental sectional elevation on line V V, Fig. III, to show the bed-trunnion supported by the adjusting-wedge. The lid is omitted from this view. Fig. VI is an end elevation of the bed removed and shown on a small scale. Fig. VII is a side elevation, on a small scale, of the bed removed. Fig. VIII is a fragmental

section on line VIII VIII to illustrate the construction of the bed at the side thereof.

a indicates the bed-supporting frame.

b indicates the negative-holding bed pivoted in the bed-supporting frame *a* upon trunnions *b' b''*. Resilient means are provided for supporting the bed at opposite sides of its pivotal axis. These means preferably consist in two bow-springs *c c'*, fastened to the bed-frame on cleats *d d'*, respectively, which are fastened to the inside of the frame to hold the springs *c c'* in the path of the negative-holding bed *b*.

e indicates a transparent lid furnished with two oppositely-arranged coaxial pivots or trunnions *f f'*, the axis of which pivots is at right angles to the axis of the pivots or trunnions *b' b''* of the bed. Two catches *g g'* are provided to respectively catch upon the pivots or trunnions *f f'* of the lid. Two cams *h h'* are journaled, respectively, on the opposite sides of the bed-frame to operate the catches *g g'*, respectively.

i indicates a handle connecting the cams with each other for simultaneous operation.

j j' indicate adjustable supports for the bed-pivots *b' b''*, respectively.

m m' m'' m''' indicate lid-supporting rubber cushions at the top of the bed-holding frame. Said bed-holding frame is also provided at each corner with two guides *n n'*, which flare outwardly to receive the lid to center it while it is being placed in position and to hold it in position after it has been placed on the cushions.

The means for connecting the lid-pivots *f f'* with the bed-holding frame to force the lid toward the frame preferably consist of hooks *g g'* to catch upon the pivots or trunnions *f f'* of the lid.

o o' indicate springs to throw the hooks, respectively, into position to catch upon their respective lid-trunnions.

p p' indicate catches to hold the hooks retracted against the pressure of their springs, respectively.

q q' indicate knobs projecting from the catches to allow the catches to be pushed inward toward the frame to release the spring-pressed hooks when the lid is in position for its trunnions to be caught by the hooks. The

bed-holding frame is provided at its ends, respectively, with vertical ways $r r'$ to receive the trunnions or pivots of the bed.

$s s'$ indicate the wedgeways in the ends of the bed-holding frame extending beneath the vertical ways.

$j j'$ indicate wedges in said wedgeways, respectively, to play back and forth in the wedgeways to furnish the adjustable supports for the trunnions of the bed. By moving the wedges along the wedgeways the pivot-supporting faces of the wedges will raise or lower the trunnions in the vertical ways.

$t t'$ indicate slots extending through the ends, respectively, of the case into the wedgeways.

$u u'$ indicate clamp-screws respectively extending through the slots and screwed into the wedges, respectively, to clamp them in any position in which they may be set.

The bed b is specially constructed to maintain a perfectly flat surface.

v indicates the top piece or plate of the bed. This is preferably provided on its under side with dovetail grooves w , extending crosswise of the plate and crosswise of the grain of the plate when the same is made of wood. x indicates cross-bars set on edge and dovetailed in said dovetail grooves, respectively.

$y y'$ indicate longitudinal side bars provided with gains z , into which the ends of the cross-bars x are fitted. The cross-bars are preferably nailed and glued in the gains and dovetail grooves. The longitudinal side bars $y y'$ are fastened to the bed-plate by screws 5.

1 1' indicate the end bars of the bed, which are halved onto the side bars $y y'$. 2 2' indicate metal straps or reinforcing-pieces set into said end bars. The trunnions $b' b''$ are fastened to the straps 2 2', respectively. The handle i , which connects the cams with each other, is preferably detachable, as indicated at 3, when the frame is large.

4 4' indicate the pivots or journals upon which the cams $h h'$ are journaled.

It is very necessary that the bed shall be absolutely rigid and the construction which is shown secures this result. The bed-top v preferably extends outside of the reinforcing-frame $x y y' 1 1'$ thereof to rest on the bow-springs $c c'$. The trunnions $b' b''$ are fastened to the bed by metal plates 2 2', respectively, which extend across the ends, respectively, of the bed and are fastened thereto by screws 6.

7 indicates reinforcing metal plates, respectively, on the longitudinal side bars $y y'$ to insure perfect rigidity of the same.

Perfect rigidity of the bed is insured by the construction shown.

By referring to Figs. IV and VIII it will be seen that the dovetail grooves w extend from one edge of the top piece v to near the other edge of said top piece, and the cross-bars x are provided with shoulders 8, and the side bars y are notched with gains 9 to fit the shouldered ends of the cross-bars x .

10 indicates means for fastening the side bars y to the cross-bars x .

When the several parts of the bed are fastened together by nails and screws and the gains, grooves, and dovetails, as shown, the top piece v is perfectly held against any deflection or bending.

The adjustment of the operative parts is such that the cams will begin the pressure when the handle is brought to the perpendicular and will complete the pressure at a quarter-turn in one direction and fully release the trunnions at a quarter-turn in the other direction.

In practical operation, the lid e being removed and the hooks $g g'$ being retracted and caught by the catches $p p'$, the printer will place the plate 12 to be etched centrally of the frame on the rubber cushion 13, which rests on the top piece v of the bed b . Then the negative 14 is placed centrally upon the plate to be etched and the operator will grasp the lid e by the handles 15 and will place it in position on the cushion $m m'$, &c. Then the hooks will be released by pressing upon the knobs $q q'$ to withdraw the catches $p p'$ from the hooks. The springs $o o'$ then throw the hooks into their catching position and the printer will throw the handle i to operate the cams h to draw the hooks down with great force, and thus draw the lid down to produce a perfect contact between the negative and the plate to be etched. Should it be found that the pressure is not sufficiently great, the handle i will be thrown to withdraw the pressure, and then the clamp-screws $u u'$ will be loosened and used as handles to move the wedges $j j'$ appropriately to raise the bed and the negative thereon. Then the printer will again throw the handle to operate the cam to draw the transparent lid down to produce contact with sufficient pressure. After the exposure the handle will be thrown to release the pressure and the hooks will be retracted and the catches $p p'$ will spring out and hold the hooks in the retracted position. The lid will then be removed to allow the removal of the negative and print.

16 indicates stops to uphold the handle at the limits of its movements.

A scale 17 is provided at each end of the bed-holding frame for indicating the adjustments of the trunnion-supporting wedges.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of a bed-holding frame; a negative-holding bed pivoted in the bed-holding frame; resilient means for supporting the bed at opposite sides of its pivotal axis; a transparent lid furnished with two oppositely-arranged coaxial pivots, the axis of which pivots is at right angles to the axis of the pivots of the bed; two catches to catch upon the pivots of the lid respectively; two cams journaled respectively on the opposite sides of the bed-holding frame to operate the

catches respectively; and means for operating the cams.

2. The combination of a bed-supporting frame; a negative-holding bed pivoted in the bed-holding frame; adjustable supports for the bed-pivots; a transparent lid furnished with two oppositely-arranged coaxial pivots, the axis of which pivots is at right angles to the axis of the pivots of the bed; two catches to catch upon the pivots of the lid respectively; two cams journaled respectively on the opposite sides of the bed-holding frame to operate the catches respectively; and means for rotating the cams.

3. A photo-engraver's printing-frame, comprising a bed-holding frame provided at its top with cushions for supporting a lid, and also provided at the corners with guides which flare outwardly at the top to receive the lid; a bed pivoted in the bed-holding frame; a transparent lid to fit between the guides and to rest upon the cushions above the bed and provided with two oppositely-arranged coaxial pivots, the axis of which pivots is at right angles to the axis of the pivots of the bed; and means connecting the lid-pivots with the bed-frame to force the lid toward the frame.

4. In a photo-engraver's printing-frame, the combination of a bed-holding frame provided at its opposite ends with vertical ways; two wedge-shaped pivot-bearings at the lower ends of said ways respectively; a bed provided with pivots in said ways resting upon said wedge-shaped pivot-bearings respectively; a transparent lid above said bed; and means pivotally connecting the lid with the bed-frame to draw the lid toward said frame.

5. In a photo-engraver's printing-frame, the combination of a bed-holding frame provided at its opposite ends with vertical ways; wedge-ways extending inside the frame across the lower portion of the vertical ways; two wedge-shaped pivot-bearings to play in said wedge-ways respectively; clamp-screws extending through slots in the bed-frame and screwed into said pivot-bearings to adjustably clamp the same to the bed-frame; a bed provided with pivots in said ways, resting above said wedge-shaped pivot-bearings respectively; a transparent lid above said bed; and means connecting the lid with the bed-frame to draw the lid toward said frame.

6. In a photo-engraver's printing-frame, the combination of a bed-holding frame; a trans-

parent lid provided with coaxial pivots; cams journaled on the bed-holding frame at the opposite sides thereof respectively; hooks mounted on said cams respectively, and arranged to catch upon the pivots of the lid respectively; and a handle connecting the cams to simultaneously rotate the same.

7. In a photo-engraver's printing-frame, the combination of a bed-holding frame; a transparent lid provided with coaxial pivots; cams journaled on the bed-frame at the opposite sides thereof respectively; hooks mounted on said cams respectively and arranged to catch upon the pivots of the lid respectively; springs for holding said hooks caught upon the pivots respectively; and means for rotating the cams.

8. A photo-engraver's printing-frame, comprising a bed-holding frame; a bed pivoted to said bed-holding frame; a transparent lid above said bed; cams journaled on the frame on the opposite sides thereof respectively; hooks on said cams respectively; springs to throw the hooks respectively to catch said pivots; catches to hold the hooks in retracted position; and means for rotating the cams.

9. In a photo-engraver's printing-frame, a plate-supporting bed, consisting of a top piece having dovetail grooves on the under side; cross-bars fitted in the dovetail grooves respectively, and extending across a portion of the top piece between the sides thereof; side bars provided with gains to fit the ends of the cross-bars, and fitted on the opposite ends of the cross-bars respectively; end bars fastened on the ends of the side bars; and means for fastening the bars and top piece together.

10. In a photo-engraver's printing-frame, a plate-supporting bed consisting in a top piece having dovetail grooves on its under side, extending from one edge toward the other edge; cross-bars fitted into the dovetails respectively, and shouldered at their ends respectively; side bars furnished with shouldered gains to fit the ends of the cross-bars; end bars fastened to the ends of the side bars; and means for fastening the parts together.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, at Los Angeles, California, this 24th day of July, 1900.

SAMUEL McLAUGHLIN.

Witnesses:

JAMES R. TOWNSEND,
F. M. TOWNSEND.