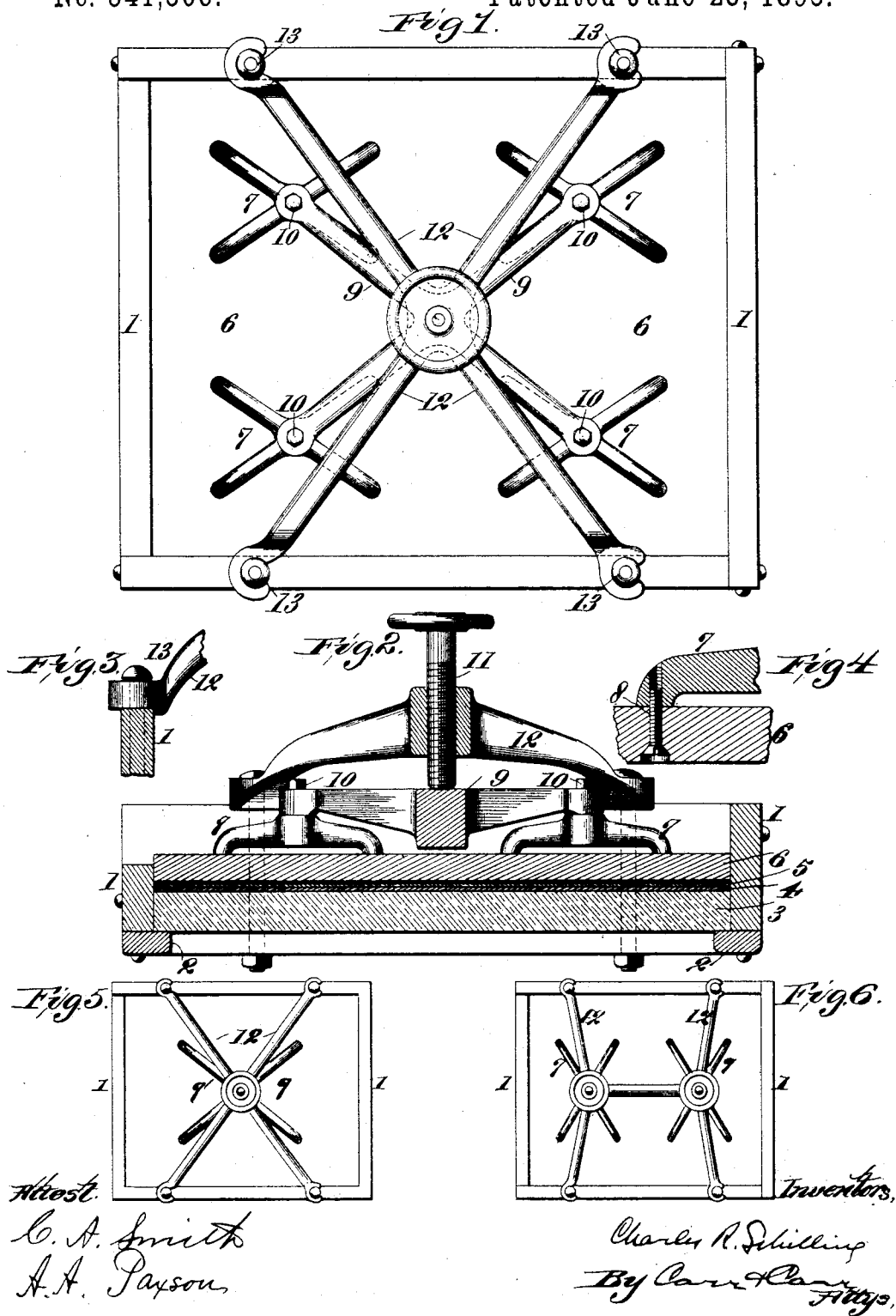


(No Model.)

C. R. SCHILLING.
PHOTOGRAPHIC PRINTING FRAME.

No. 541,506.

Patented June 25, 1895.



UNITED STATES PATENT OFFICE.

CHARLES R. SCHILLING, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE WESTERN
ENGRAVERS' SUPPLY COMPANY, OF MISSOURI.

PHOTOGRAPHIC-PRINTING FRAME.

SPECIFICATION forming part of Letters Patent No. 541,506, dated June 25, 1895.

Application filed July 7, 1894. Serial No. 516,815. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. SCHILLING, a citizen of the United States, and a resident of the city of St. Louis, State of Missouri, have
5 invented certain new and useful Improvements in Photographic-Printing Frames, of which the following is a specification.

The principal objects of my invention are to economize time and labor in making prints
10 and printing plates from photographic negatives and to distribute and equalize the pressure throughout the surface of the sensitized sheet.

The invention consists in the parts and in
15 the arrangements and in the combinations of the parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification, Figure 1 is a plan view of my device. Fig. 2 is a cross-section
20 thereof with a negative and a sensitized sheet in place. Fig. 3 is a detail view of the bolt-and-fork connection at the top edge of the frame. Fig. 4 is a detail view showing how the spider-leg is fastened to the cover by a
25 countersunk screw, and Figs. 5 and 6 are plan views of modifications of my device.

The side pieces, 1, of the frame have an inwardly projecting flange, 2, against which, inside the frame, rests a thick glass plate, 3.
30 On this plate or bottom glass is laid the negative as shown at 4, in Fig. 2, and on the negative is laid the sensitized sheet, 5. On this sheet, 5, is laid the cover or pressure board, 6, which preferably is faced with some suitable soft material.

The cover or pressure board, 6, is provided with one or more spiders, 7, consisting of arches of any number of spreading legs. The legs of these spiders are preferably secured
40 to said cover by screws, 8, countersunk in the lower surface thereof as shown in Fig. 4; but the spiders may be fastened to the pressure device instead, or even be entirely loose. One or more spiders are used according to the size
45 of the cover.

Fig. 1 illustrates the preferred construction with four spiders fastened to the cover. A fifth spider, 9, has one leg resting on and permanently secured to the hub of each of said
50 spiders by a bolt, 10, or other suitable means.

The hub of this top spider is solid and furnishes a bearing for any suitable pressure device, such as a cam lever, or preferably a screw, 11. This pressure screw works through a threaded hole in the hub of a yoke, 12, whose
55 legs are adapted to interlock with co-operating devices provided therefor on the top edges of the frame. The yoke may be held in position by divers means but the construction illustrated has many special advantages. 60 This construction consists of a bolt, 13, extending edgewise through the side of the frame and having a large head raised sufficiently above said edge to allow the end portion of the yoke leg to slide thereunder. The
65 lower end of the bolt is screw threaded and provided with a nut thereon whereby the bolt may be adjusted conveniently and accurately. One bolt is provided for each leg of the cross piece and there is a slot or open space in each
70 leg wide enough to admit the body portion of the corresponding bolt but not its head. The ends of the legs of the cross piece thus constitute forks adapted to straddle their respective bolts and rest under the bolt heads, as
75 shown in Fig. 1. The slots or open spaces of the forks in the several yoke legs all open in the same direction.

The operation of the device is as follows: The negative and the sensitized sheet being
80 laid in position, the cover is laid thereon, the screw press is laid on the top edge of the frame and its legs slid along until the forked ends thereof straddle their respective bolts. The pressure screw is then turned, bearing down
85 on the hub of the top spider, and the pressure thus effected is distributed evenly throughout the entire surface of the cover. To unlock the device, the pressure screw is unturned and the cross yoke slid out of engage-
90 ment with the bolt heads. The particular advantage of this construction is that the pressure is applied by a single screw whereby the operation is more rapid and less laborious. The pressure is distributed by the ar-
95 rangement of spiders throughout the entire surface simultaneously with its application, whereby there is less danger of breakage of the negative and the bottom glass than when the pressure has to be equalized by several
100

separate means. The use of a screw allows a very large force to be applied, an advantage of considerable importance in flattening out stiff sheets or plates, such as zinc plates, and in preventing plates from buckling or bending. The sliding button joint saves considerable time and labor in adjusting and fastening the cross piece for use. By having the side bolts extend entirely through the sides of the frame, the danger of the bolts working loose is very much reduced and the pressure in practice binds the frame together instead of tending to pull it apart. So also with the screws which pass entirely through the cover. Their threaded ends screw into the metal of the spider legs, and their heads are sunk into the cover in order not to bear on the sensitized plate.

Figs. 5 and 6 illustrate modifications of my device, which require no special description. The device shown in Fig. 5, has a single spider and is specially adapted for small negatives; while that shown in Fig. 6 has two spiders, one at each end, and is specially adapted for long narrow negatives. Fig. 6 also illustrates the fact that two or more pressure screws may be used when desired, if only the cross yoke is provided with the proper hubs and the cover provided with the proper bearing surfaces therefor. Such changes and other like changes are merely a question of mechanical designing.

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

1. A printing frame comprising a pressure board, a spider for distributing the pressure and a pressure device acting on said spider.

2. A printing frame comprising a pressure board having spiders resting thereon, on the hubs of which rest the legs of another spider,

and a pressure device acting on the hub of said last mentioned spider.

3. A printing frame provided in its top edges with bolts extending above said edges, a pressure board provided with a pressure equalizing device and a bearing for a screw, said screw working in a cross yoke whose legs are adapted to form a sliding button joint with said bolts respectively.

4. A printing frame provided in its top edges with bolts extending above said edges, and a cross yoke having forked legs adapted to straddle said bolts, said cross yoke carrying a device adapted to apply pressure to the pressure board.

5. A printing frame comprising a pressure board, a spider resting thereon, and a screw press acting on said spider.

6. A printing frame comprising a pressure board having spiders bearing thereon, on the hubs of which rest the legs of another spider, and a screw press acting on the hub of said last mentioned spider.

7. A printing frame provided in its top edges with bolts extending above said edges, and a cross yoke having forked legs adapted to straddle said bolts, said cross yoke carrying a screw press adapted to apply pressure to the pressure board.

8. In a printing frame, bolts extending edge-wise through the sides of the frame with their heads raised above the edge thereof, and a screw press having the ends of its supporting legs forked, whereby it is adapted to form a button joint with said bolts.

CHARLES R. SCHILLING.

Witnesses:

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