A. KLOSS.

PHOTOGRAPHIC PRINTING APPARATUS.

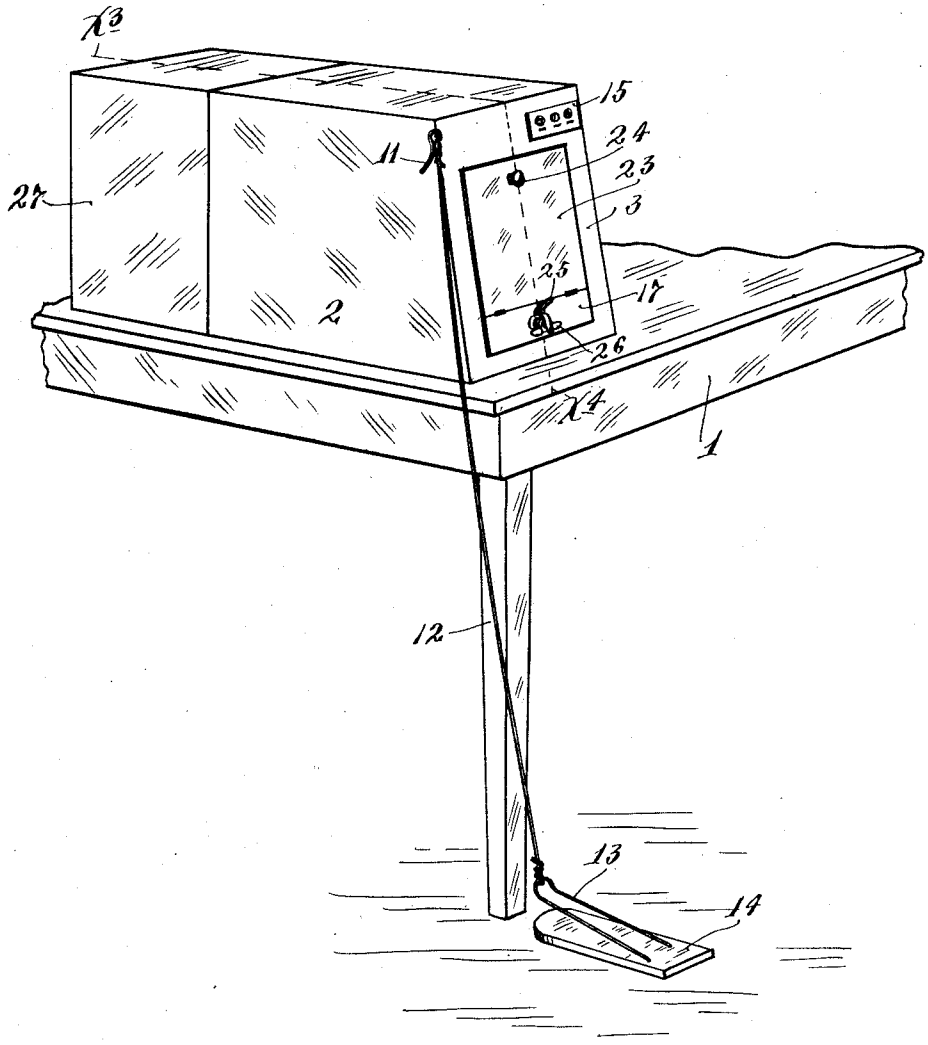
APPLICATION FILED MAR. 15, 1909.

1,011,968.

Patented Dec. 19, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 3

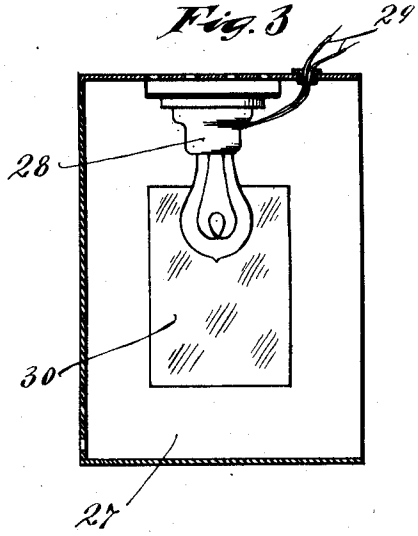
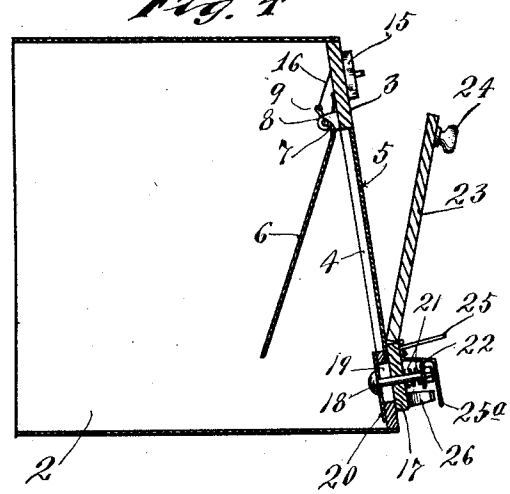


Fig. 4



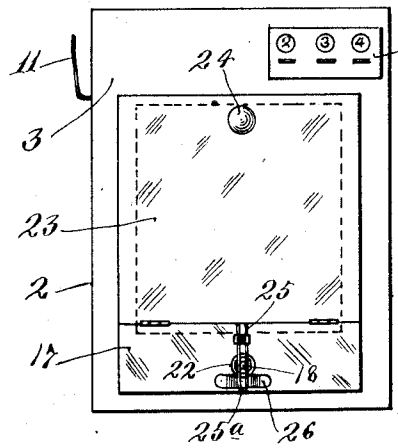


Fig. 2.

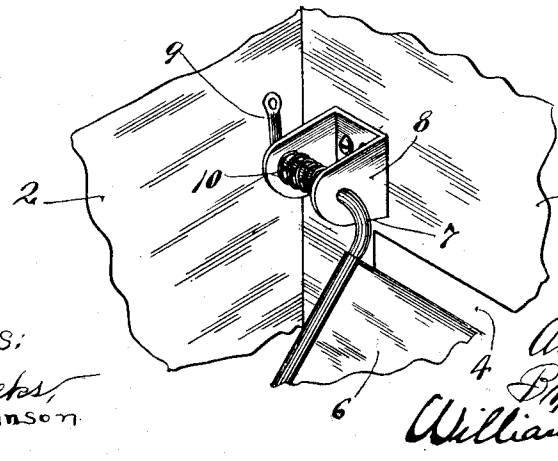


Fig. 5.

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UNITED STATES PATENT OFFICE.

ATHNIEL KLOSS, OF WILLISTON, NORTH DAKOTA.

PHOTOGRAPHIC-PRINTING APPARATUS.

1,011,968. Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed March 15, 1909. Serial No. 483,421.

To all whom it may concern:

Be it known that I, ATHNIEL KLOSS, a citizen of the United States, residing at Williston, in the county of Williams and State of North Dakota, have invented certain new and useful Improvements in Photographic-Printing Apparatus; 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 invention has for its object to provide an extremely simple and highly efficient photographic printing apparatus, and to this end, it 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 apparatus placed upon a table, portions of the table being broken away; Fig. 2 is a front elevation of the improved apparatus; Figs. 3 and 4 are vertical sections taken longitudinally through the improved apparatus on the line x^3 x^4 of Fig. 1, and showing the two parts of the apparatus separated; and Fig. 5 is a perspective view with parts broken away, showing one of the spring hinges which connect the shutter to the main body portion of the apparatus case.

In Fig. 1, the numeral 1 indicates the table. The improved apparatus comprises a case 2, which is preferably approximately rectangular being open at one end, and having a slightly inclined plate 3 at its other end. This end plate 3 has a quite large and preferably rectangular light passage 4, in which a glass plate 5 is suitably secured.

A shutter 6 preferably made up of a translucid material, such as cloth colored red or orange, is secured to a marginal wire frame 7, the upper ends of which are turned outward to afford trunnions that are pivotally mounted in bearing brackets 8, secured to the inner surface of the end plate 3 just above the light passage 4 thereof. One trunnion of the shutter frame 7 is provided with an up-turned arm 9, and on this same trunnion, a coiled torsion spring 10 is applied. The spring 10 is anchored at one end to the bracket 8, and at its other end, to said trunnion, and it exerts a force which yieldingly holds the shutter in a position to close the light passage 4. The other trunnion of said shutter frame 7 is provided, outward of the case 2, with an up-turned arm 11. This arm 11 is connected by a light wire or cable 12 to a spring foot piece 13 shown as of U-shaped form, with its prongs anchored to a base plate 14, which latter rests loosely on the floor.

Preferably, a register or tally, indicated as an entirety by the numeral 15, is applied to the upper outer portion of the end plate 3. This register may be of any suitable or well known construction, and may be actuated by a light connecting rod 16 attached to the arm 9. The purpose of this register is to record the number of operative movements imparted to the shutter 6, and hence, to enable the operator to keep track of the number of prints which he has made.

To the lower outer portion of the end plate 3, an approximately horizontal straight edge or rectangular bar 17 is secured with freedom for oscillatory movements, and preferably also for limited vertical movements, by means of a nutted bolt 18 passed through the perforation in the central portion thereof and through a vertically elongated slot 19 in the said end plate. Preferably, the headed end of the bolt 18 clamps a washer 20 against the inner surface of the end plate 3, and a coiled spring 21 is compressed between the straight edge 17 and a washer 22 that is held on the outer end of the bolt by the nut of the latter. The spring 21 serves to frictionally clamp the straight edge 17 against the end plate 3 under such force, that it will not be accidentally moved, but nevertheless, permits the said straight edge to be forced into different adjustments both by oscillatory movements and by vertical movements.

A clamping plate 23 is hinged at its lower edge to the upper edge of the straight edge 17, and as shown, is provided with a knob 24 by means of which it may be readily moved to and from an operative position.

The numeral 25 indicates a stop secured to the straight edge 17 for limiting the downward movement of the clamping plate 23. This stop 25 is shown as provided with a depending thumb piece 25^a, and a bowed finger piece 26 is secured to the straight edge 17 below the bolt 18. The ends of this finger piece 26 project on opposite sides of the thumb piece 25^a. When the thumb is placed

on the thumb piece 25ª, and the first and second fingers are engaged with the ends of the finger piece 26, the spring 21 may be compressed to a greater extent, and the straight edge thereby moved outward from frictional engagement with the end plate 3, so that it may be easily adjusted.

The device so far described is a complete apparatus for taking photographic prints from sunlight, but for taking photographic prints by electric light, I provide an attachment preferably in the form of a rectangular casing 27, having an open end that is adapted to be telescoped into the main casing 2. Within this casing 27 is an ordinary electric lamp 28, supplied with current from wires 29. Preferably the supplemental casing 27 is provided at one side with a red or orange colored glass pane 30, which will permit sufficient light to escape into the dark room to enable the operator to handle his negatives and printing paper.

The negative and the printing paper, are, of course, placed between the glass plate 5 and the glass plate 23, with the lower edge of the negative resting on the upper edge of the straight edge 17. If the negative is true or straight upon the negative plate or film, the straight edge 17 will, of course, be set in a horizontal position, but if the said negative should be slightly crooked, or out of plumb on the negative plate or film, the straight edge should be set in such oblique position that the negative will be presented in a plumb position, and the paper should be properly held in a horizontal position.

When a film and printed paper are placed in position for printing, and the clamping plate 23 is pressed against the same, the straight edge 17 will not be pressed outward from the end plate 3, but if a glass negative plate which has considerable thickness is used, and the clamping plate 23 is then tightly forced against the same, the straight edge 17 will be forced slightly outward against the tension of the spring 21. The lower edge of the negative should be clamped between the glass plate 5 and the clamping plate 23, and the paper should be placed with its lower edge resting loosely on the upper edge of the clamping bar, while the shutter 6 is in a position to close the light passage 4. The dim red light which is passed through the shutter 6 will not, of course, affect the sensitized paper, but will be sufficient to enable the operator to observe the proper location thereof for printing. While the negative and paper are thus clamped, the shutter is moved into an open position by stepping on the foot piece 13. When the foot is removed from the foot piece, the shutter will be automatically thrown back to its closed position by the spring 10, and the printed paper and negative may then be removed from between the plates 5 and 23.

The improved printing apparatus above described, while extremely simple and of small cost, has in practice been found highly efficient for the purposes had in view.

What I claim is:

1. In a photographic printing apparatus the combination with a transparent plate and a support therefor, of a shutter hinged to said support on one side of said transparent plate, a straight edge adjustably and yieldingly secured on said support at the other side of said transparent plate with freedom for angular adjustment in respect to the lower edge of said plate, and a hinged clamping plate on the same side of said transparent plate as the said straight edge, substantially as described.

2. In a photographic apparatus, the combination with a casing provided in one wall with a transparent plate, of a shutter within said casing, means for opening said shutter at will, a straight edge applied to the outer side of the said casing below said transparent plate, means for yieldingly securing said straight edge in different angular positions in respect to the lower edge of said plate, and a clamping plate hinged at its lower edge to the said straight edge, substantially as described.

3. In a photographic printing apparatus, the combination with a casing having a transparent plate in one wall, a shutter within said casing, means for moving said shutter at will, a straight edge applied to the exterior of said casing at the lower portion of said transparent plate, a pivot bolt and coöperating spring yieldingly pressing said straight edge onto said casing and connecting the same thereto with freedom for oscillatory adjustment, and a clamping plate hinged to said straight edge and coöperating with said transparent plate to clamp a negative and paper in position for printing.

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

ATHNIEL KLOSS.

Witnesses:
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F. D. MERCHANT.