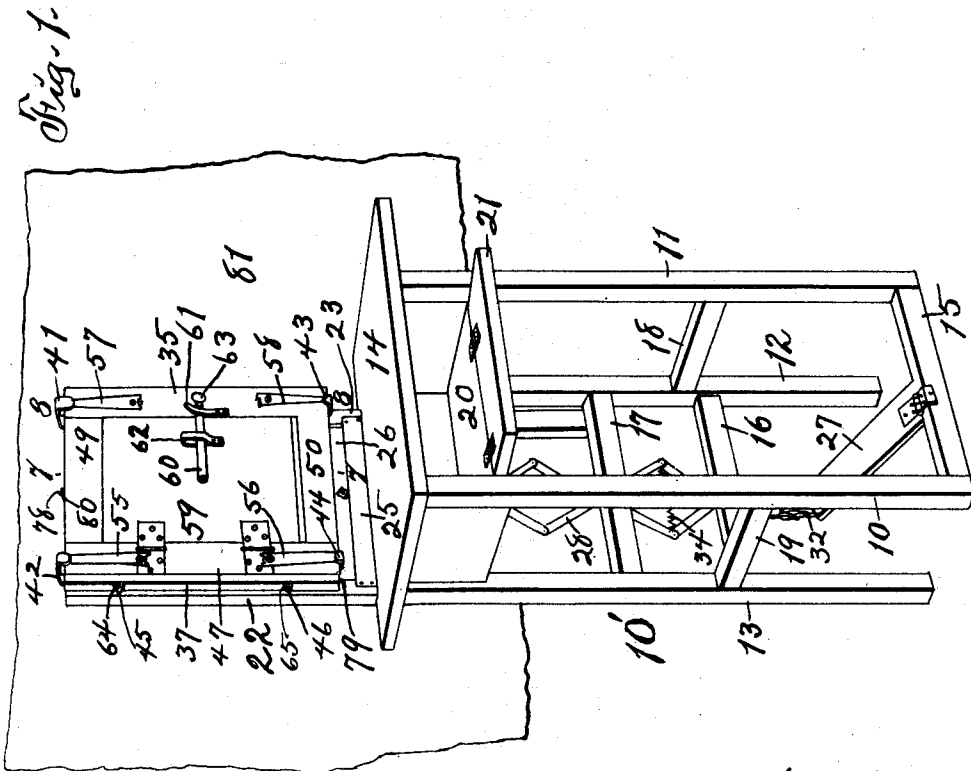
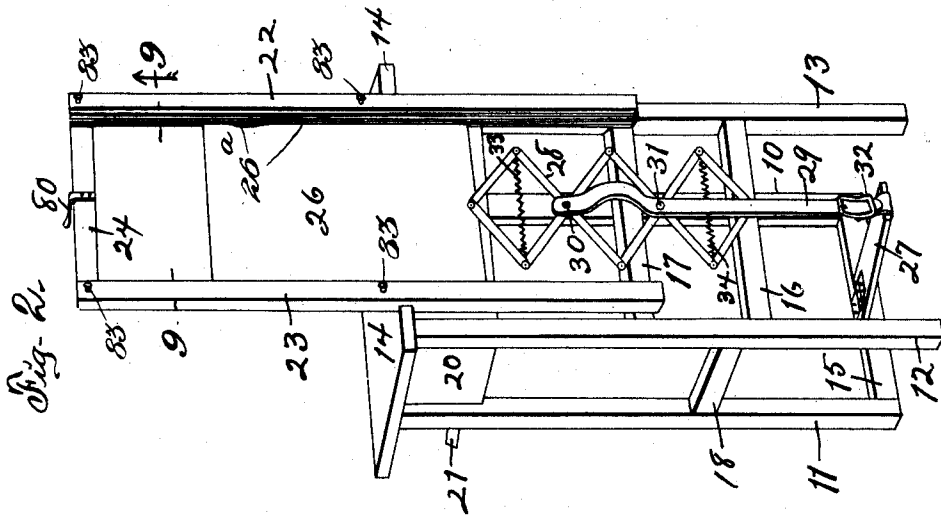


F. O. PARSONS.
 PHOTOGRAPHIC PRINTING MACHINE.
 APPLICATION FILED FEB. 17, 1910.

977,543.

Patented Dec. 6, 1910.

3 SHEETS—SHEET 1.



Attest:
 E. W. Miller
 N. W. Winters.

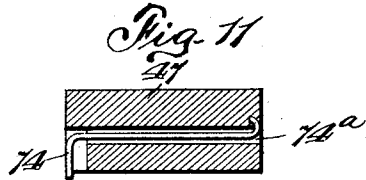
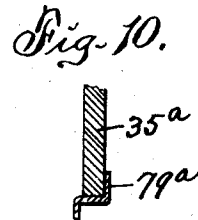
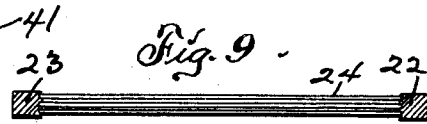
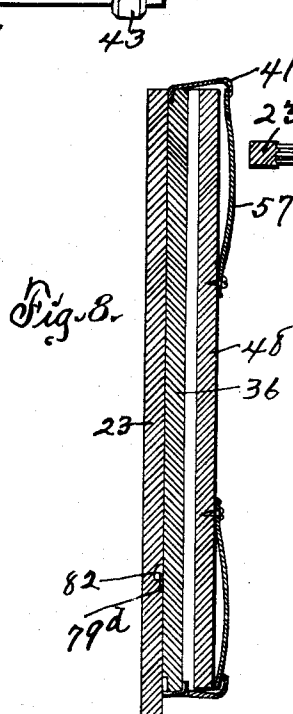
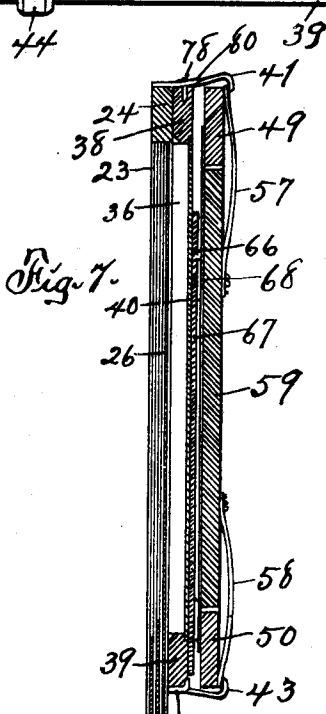
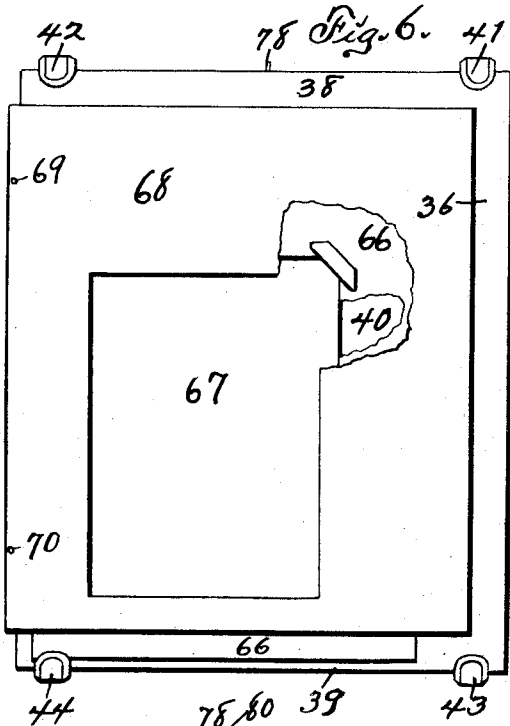
Inventor:
 Fred O. Parsons.
 By Thomas G. Arwig, Atty.

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3 SHEETS—SHEET 3.



Attest: 79
 Earl M. Sinclair
 N. W. Winters.

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 Attys

UNITED STATES PATENT OFFICE.

FRED O. PARSONS, OF SPIRIT LAKE, IOWA.

PHOTOGRAPHIC-PRINTING MACHINE.

977,543.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed February 17, 1910. Serial No. 544,942.

To all whom it may concern:

Be it known that I, FRED O. PARSONS, a citizen of the United States, residing at Spirit Lake, in the county of Dickinson and State of Iowa, have invented a new and useful Photographic-Printing Machine, of which the following is a specification.

The object of this invention is to provide an improved construction for photographic printing machines.

A further object of this invention is to provide an improved construction for photographic printing frames and means for mounting said frame during an exposure.

A further object of this invention is to provide improved means for effecting an exposure and making prints from films or plates in a photographic printing frame.

A further object of this invention is to provide improved means for securing a mask in proper relation to a film or plate in a photographic printing frame.

My invention consists in the construction, arrangement and combination of elements hereinafter set forth, pointed out in my claims and illustrated by the accompanying drawing, in which—

Figure 1 is a perspective showing the front of the complete machine, placed in front of a curtain and ready for use. Fig. 2 is a perspective of the rear of the machine, the printing frame being removed and the screen partially lowered. Fig. 3 is a front elevation of the printing frame, dotted lines showing the door in open position. Fig. 4 is a rear elevation of the front portion of the printing frame. Fig. 5 is a rear elevation of the back portion of the printing frame. Fig. 6 is a front elevation of the rear portion of the printing frame, showing a mat thereon containing a plate and a mask partially covering said plate, a portion of the mask being cut away to show the mat and plate therein, and a portion of the mat cut away to show the rear glass of the printing frame. Fig. 7 is a longitudinal section on the indicated line 7—7 of Fig. 1, looking to the right. Fig. 8 is a longitudinal section on the indicated line 8—8 of Fig. 1, looking in the same direction. Fig. 9 is a cross-section on the indicated line 9—9 of Fig. 2. Fig. 10 is a longitudinal section similar to Fig. 8 of the lower portion of a printing device of smaller size than that shown in the other figures, showing the means of supporting said frame on

the stand. Fig. 11 is a cross-section on the indicated line 11—11 of Fig. 4, on an enlarged scale.

In the construction and mounting of the device as shown a stand or table 10' is employed and said stand is formed with legs 10, 11, 12, 13 and a top 14. A cross bar 15 rigidly connects the legs 10, 11 adjacent their lower ends and cross bars 16, 17 rigidly connect and brace the legs 12 and 13. A cross bar 18 connects the legs 11 and 12 and a cross bar 19 connects the legs 10 and 13. A box or compartment 20 may be formed beneath the top 14 by means of boards secured to said legs and top, and a door 21 may be hinged thereto. The box 20 will be convenient for holding material to be used with the machine; and when the door 21 thereof is open it forms a convenient shelf. Standards 22, 23 are fixed to and rise above the rear side of the top 14, and said standards are braced at their lower ends to the cross bar 17. A cross bar 24 is fixed between the upper ends of and rigidly connects the standards 22, 23. A cross bar 25 may also connect and brace the standards 22, 23 adjacent the top 14 of the stand. The standards 22, 23 are grooved longitudinally on their inner faces, and an opaque screen 26 of any suitable material is mounted for vertical reciprocation in one set of said grooves. Other screens (not shown) of different material or suitable for use under varying conditions are or may be mounted in the remaining grooves of the standards 22, 23, and said screens are held in position by springs 26^a on the standards. A treadle 27 is hinged at its lower end to the central portion of the cross bar 15. Lazy-tongs 28 are fixed at their upper end centrally to the lower portion of the screen 26 and at their lower end to the central portion of the cross bar 16. A strap 29 is fixed at its lower end to the upper end portion of the treadle 27 and said strap is fixed at its upper end to the point of intersection 30 of the second pair of arms of the lazy-tongs 28. The strap 29 is also fixed intermediate of its ends to the point of intersection 31 of the third pair of arms of the lazy-tongs 28. The strap 29 may be provided with a buckle 32 for the purpose of lengthening and shortening said strap when desired. It is the function of the treadle 27, through its connections with the lazy-tongs 28, to lower the screen 26 in the standards 22, 23 by means of foot pres-

sure applied to said treadle. A retractile coil spring 33 connects the lower end portions of the upper pair of arms of the lazy-tongs 28, at the points of pivoting of said arms to the upper end portions of the second pair of arms thereof. A retractile coil spring 34 connects the pivotal points of connection of the lower pair of arms of said lazy-tongs with the pair of arms adjacent thereto. It is the function of the springs 33, 34 to expand the lazy-tongs vertically after foot pressure has been removed from the treadle 27, thus forcing the screen 26 back to its original elevated position.

With the stand above described I employ a printing frame 35, and said printing frame is adapted to be mounted on and carried by the standards 22, 23 of said stand as herein-after described. The printing frame 35 is composed of a front portion and a back portion, illustrated in Figs. 4 and 5 respectively. The back portion of said printing frame is composed of side pieces 36, 37 and end pieces 38, 39, beveled on the inner edges of their back sides, said side and end pieces constituting a frame in which is mounted a piece of ordinary window glass 40. Clamping hooks 41, 42 are fixed to the end piece 38 and rise above the plane of the back portion of said printing frame, and similar clamping hooks 43, 44 are fixed to and rise from the end piece 39. Posts 45, 46 are screwed into the outer edge of the side piece 37 and rise perpendicular to the plane of the front side of the rear portion of the frame 35. The posts 45, 46 are slightly spaced from the outer margin of the side piece 37.

The front portion of the frame 35 is composed of side pieces 47, 48 and end pieces 49, 50, the side piece 47 being hinged to the end pieces 49, 50 by means of hinges 51, 52 and the other connections between said side and end pieces being rigid. The side pieces 47 and 48 are formed with notches 53 and 54 at their ends to receive the clamping hooks 41, 43 and 42, 44 respectively of the back portion of the printing frame. Spring clamps 55, 56 are pivoted at one end each on the front side of the side piece 47 and are adapted to engage with the clamping hooks 42, 44 when the front portion is in position on the back portion of said printing frame, and similar spring clamps 57, 58 are pivoted on the side piece 48 and are adapted to engage with the clamping hooks 41, 43 on the side piece 36. It is the function of the spring clamps, when in engagement with the clamping hooks, to hold the front and back portions of the printing frame 35 firmly together in intimate contact. A door 59 is hinged to the side piece 47 of the front portion of the frame 35, and is adapted to close the opening formed by the side pieces 47, 48 and end pieces 49, 50. A latch 60 is pivoted at its inner end on the door 59

and the outer end of said latch projects beyond the forward margin of said door and is adapted to be engaged by a catch 61 on the side piece 48, for the purpose of fastening said door. A keeper 62 on the door 59 limits movement of the latch 60. A knob 63 is formed on or fixed to the outer end of said latch for convenience of manual actuation thereof. Ears 64, 65 are fixed to the back side of the side piece 47 and project laterally therefrom. The ears 64, 65 are formed with apertures adapted to fit over and receive the upper end portions of the posts 45, 46 respectively, thus holding the front portion in proper position when it is placed on the back portion of the printing frame.

A mat 66 is provided and is formed of cardboard or some similar material, and is of the approximate thickness of a negative 67 to be used and adapted to be contained therein. When a negative of different size is to be used a different mat will be employed. The mat is adapted to be placed upon the back portion of the frame 35 and hold the negative in proper position for printing, but such mat is used only when the negative to be printed is smaller than the opening for the door 59. When the negative is larger than said opening it will be held in place between the front and back portions of the frame and no mat will be necessary. A mask 68, of any suitable material, is employed and is provided with an opening of the desired size and shape to determine the border of the picture to be printed from the negative 67. The mask 68 is provided with apertures 69, 70 in its left margin adapted to fit over the upper end portions of the posts 45, 46 and hold said mask in the desired position relatively to the negative 67. It is to be understood that any number of masks, formed with openings of any desired size and shape, may be employed with this machine.

Spring guides 74 are fixed to the back side of the front portion of the frame 35, on the side piece 47 and end piece 50, and project slightly within the inner margin of said side piece and end piece. The spring guides 74 (Fig. 12) are formed of wire with a hook at one end embedded in the side or end piece of the front portion of the frame 35. The guides 74 lie in transverse holes 74^a in said side or end pieces, and said holes are relatively large in diameter to permit the springs 74 to be pressed forwardly therein. The spring guides 74 are bent back at right angles near their free ends adjacent the inner margins of the side or end pieces in which they lie. It is the function of the spring guides 74 to act as feed guides against which a sheet of sensitized paper to be printed from the negative 67 may be placed, and said guides determine the position of such paper relatively to said nega-

tive. An ejecting spring 75 is fixed to the inner margin of the end piece 50 and is adapted to eject the print when the door 59 is opened, or at least raise said print so that it can be quickly and easily grasped and removed manually. The front face of the front portion of the frame 35 is formed with a depression or sink 76 at the point of junction of the side piece 48 and end piece 49, for convenience in manually removing a print or paper which extends up to the upper right corner of said frame. A pin 78 is fixed in and projects above the upper end portion of the end piece 38 of the back portion of the frame 35.

In the practical use of this machine the back portion of the frame 35 is laid on its back and the negative 67, within the mat 66 if a mat is to be used, is placed thereon next to the glass 40. Then the mask 68 is placed thereon, the apertures 69, 70 fitting over the posts 45, 46, and the negative is adjusted beneath the opening in the mask 68. The front portion of the frame 35 is then superposed upon said back portion, the apertures in the ears 64, 65 engaging the posts 45, 46, and said front and back portions are securely fastened together by engagement of the spring clamps 55, 56, 57, 58 with the clamping hooks 42, 44, 41, 43. The door 59 is then opened and a piece of sensitized paper is placed in proper position against the negative 67 and mask 68. The paper to be printed is placed in the lower left corner of the frame, against the spring guides 74, and above the ejecting spring 75 in case a mask is to be used, otherwise behind said ejector. The ejector 75 is used principally in rapid printing, such as of post cards, and its function is to raise the print so that said print can be quickly and easily removed manually. When there is to be no margin on the picture, as when no mask is used, it is better not to employ the ejector 75, as its use will leave a white or unprinted spot on the edge of the face of the print. The door is then closed and fastened by means of the latch 60 and catch 61, and the frame 35 is ready to be mounted on the stand 10'. Such mounting is accomplished as follows: Hooks 79, one of which is shown in Fig. 1, are fixed to the front sides of the standards 22, 23, a short distance above the top 14. A spring clip 80 is fixed to the top of the cross bar 24 and extends forwardly therefrom. The hooks 79 are adapted to engage and support the lower end portion of the frame 35, and an aperture in the spring clip 80 is adapted to fit over and hold the pin 78 in the top of the frame, thus mounting the frame 35 securely on the stand 10'. The stand 10', with the frame 35 mounted thereon, is placed before a window or other source of light over which a curtain 81 is drawn. The curtain 81 is

formed with a hole or aperture of the proper size and at the proper height to effect an exposure of the negative in the frame 35 when mounted on the stand 10'. The curtain 81 may be held in contact with said standards in any desired manner, such as by buttoning to knobs 83 on the rear faces thereof. The exposure is effected by means of foot pressure applied by the operator upon the treadle 27, such pressure acting, through the strap 29, to expand the lazy-tongs 28 laterally, against the resilience of the springs 33, 34, and draw the screen 26 downwardly, leaving the printing frame 35 in juxtaposition to the aperture in the curtain 81. When such exposure has continued for the desired length of time, foot pressure is released from the treadle 27, thus allowing the lazy-tongs 28 to expand vertically under the influence of the springs 33, 34 and force the screen 26 upwardly to close the aperture in the curtain 81. The door 59 is opened, the print removed, and another piece of sensitized paper inserted if desired. The printing frame 35 can, of course, be used independently of the stand 10' by holding in the hand or as ordinary printing frames are used. It will be observed that the use of posts 45, 46 and apertured ears 64, 65 on the printing frame 35 renders such frame adjustable to the use of either films or plates of different thickness.

To allow of the use of a smaller printing frame 35^a with the stand 10' the following construction is provided: The standards 22, 23 are formed with slots 82 in their front faces, at the desired height above the hooks 79. Plates 79^a are set into the faces of said standards in front of the lower portions of the slots 82. Hooks 79^a are fixed to the lower margin of the printing frame 35^a (Fig. 10) and said hooks are adapted to be received within the slots 82 and behind the plates 79^a and hold said printing frame in such position that the top thereof is flush with the top of the cross bar 24.

I claim as my invention—

1. In a photographic printing machine, a stand, a printing frame mounted on said stand, a screen covering said printing frame, a treadle hinged on the lower portion of said stand, lazy-tongs connected at one end to the stand and at the other end to the lower portion of said screen, flexible connections between said treadle and lazy-tongs, said screen spring-held in elevated position and adapted to be lowered by foot pressure applied to said treadle.

2. In a photographic printing machine, a stand and a printing frame, said stand comprising legs, braces between said legs, a top, standards rising above said top, a screen mounted for vertical reciprocation between said standards, lazy-tongs fixed to and depending from the lower end portion of said

screen and fixed at the lower end to said stand, a treadle hinged to the lower portion of said stand, a strap fixed to and depending from said lazy-tongs, said strap fixed at its lower end to said treadle, springs holding said lazy-tongs in extended vertical position, and means for holding said printing frame on said standards before said screen.

3. A photographic printing machine, comprising a stand and a printing frame, said stand formed with legs and a top, grooved standards fixed to and rising from said top, a box under said top, a screen mounted for vertical sliding movement in the grooves of said standards, a cross piece on the lower portions and connecting the front legs of said stand, a treadle hinged to said cross piece, lazy-tongs fixed to and depending from the lower end portion of said screen and fixed at the lower end to said stand, a strap adjustably fixed to said lazy-tongs and depending therefrom, said strap adapted to limit vertical expansion of said lazy-tongs, springs under said lazy-tongs adapted to limit lateral expansion thereof, said strap fixed at its lower end to the upper end portion of said treadle, a cross bar fixed to and rigidly connecting the upper end portions of said standards, an apertured spring clip on and extending forwardly from said cross bar, hooks on the front surfaces of said standards above the top of said stand, said hooks adapted to engage the lower portion of and support said printing frame, and a pin on the upper end portion of said printing frame adapted to be engaged by the aperture in said spring clip.

4. In a photographic printing machine, a

printing frame formed with front and back portions, said back portion being rigid, said front portion formed of a rail adapted to be clamped at its ends to the back portion, a three-sided frame hinged to said rail and adapted to be clamped independently of the rail to the back portion, and a door hinged to said rail and adapted to be latched in closed position.

5. In a photographic printing machine, a printing frame formed with front and back portions, said back portion comprising a rigid frame and a glass within said frame, said front portion comprising a rail, a three sided frame hinged to said rail and a door hinged to said rail and closably within said three-sided frame, clamp hooks fixed to and rising from said back portion, and independent spring clamps fixed to said rail and three sided frame and adapted to engage said clamp hooks.

6. In a photographic printing machine, a printing frame formed with separable front and back portions, posts rising from said back portion, apertured ears on said front portion adapted to engage said posts, clamp hooks fixed to and rising from said back portion, spring clamps pivoted on said front portion and adapted to engage said clamps hooks, a door hinged in said front portion, paper feed guides in said front portion adjacent the margin of said door, and a paper ejector fixed in said front portion adjacent the margin of said door.

FRED O. PARSONS.

Witnesses:

C. W. PRICE,
G. S. PARSONS.