

No. 619,713.

Patented Feb. 21, 1899.

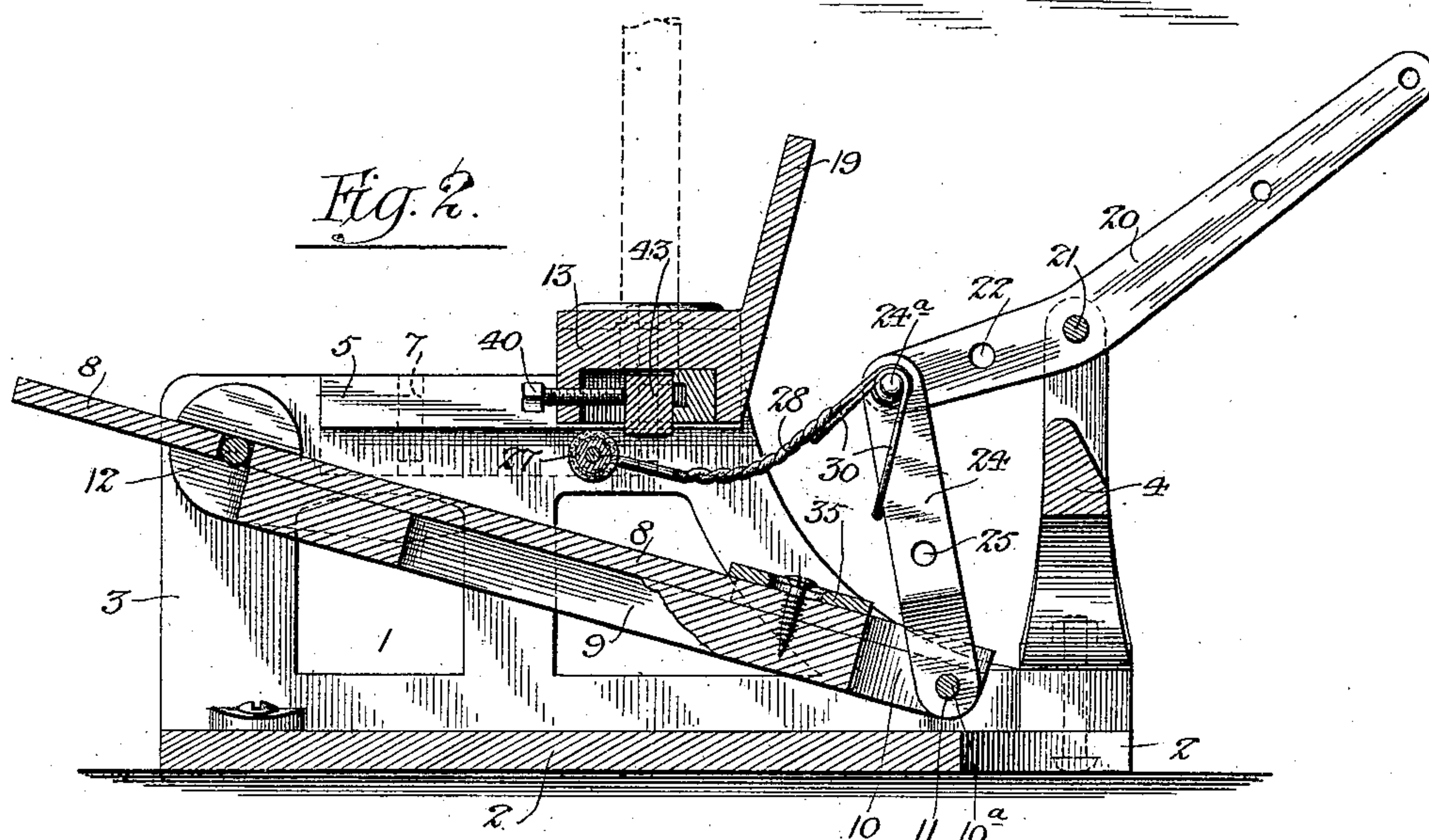
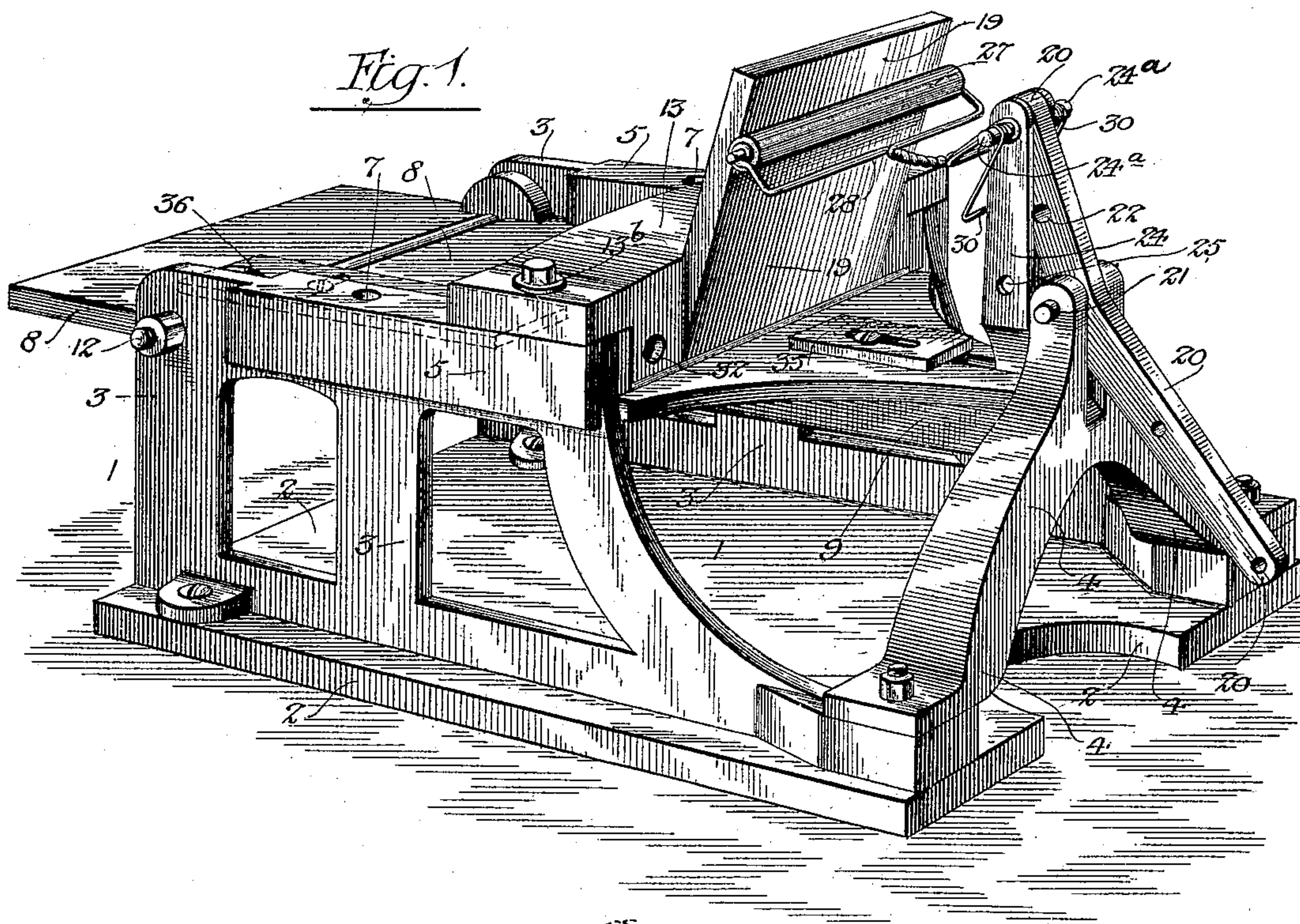
W. A. BILLMAN.

PHOTOGRAPHER'S PRINTING AND EMBOSSING PRESS.

(Application filed Nov. 26, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Inventor:—

William A. Billman

Witnesses :—

Louis M. F. Whitehead

H. J. Benson

By His Attorneys,

CA Snow & Co.

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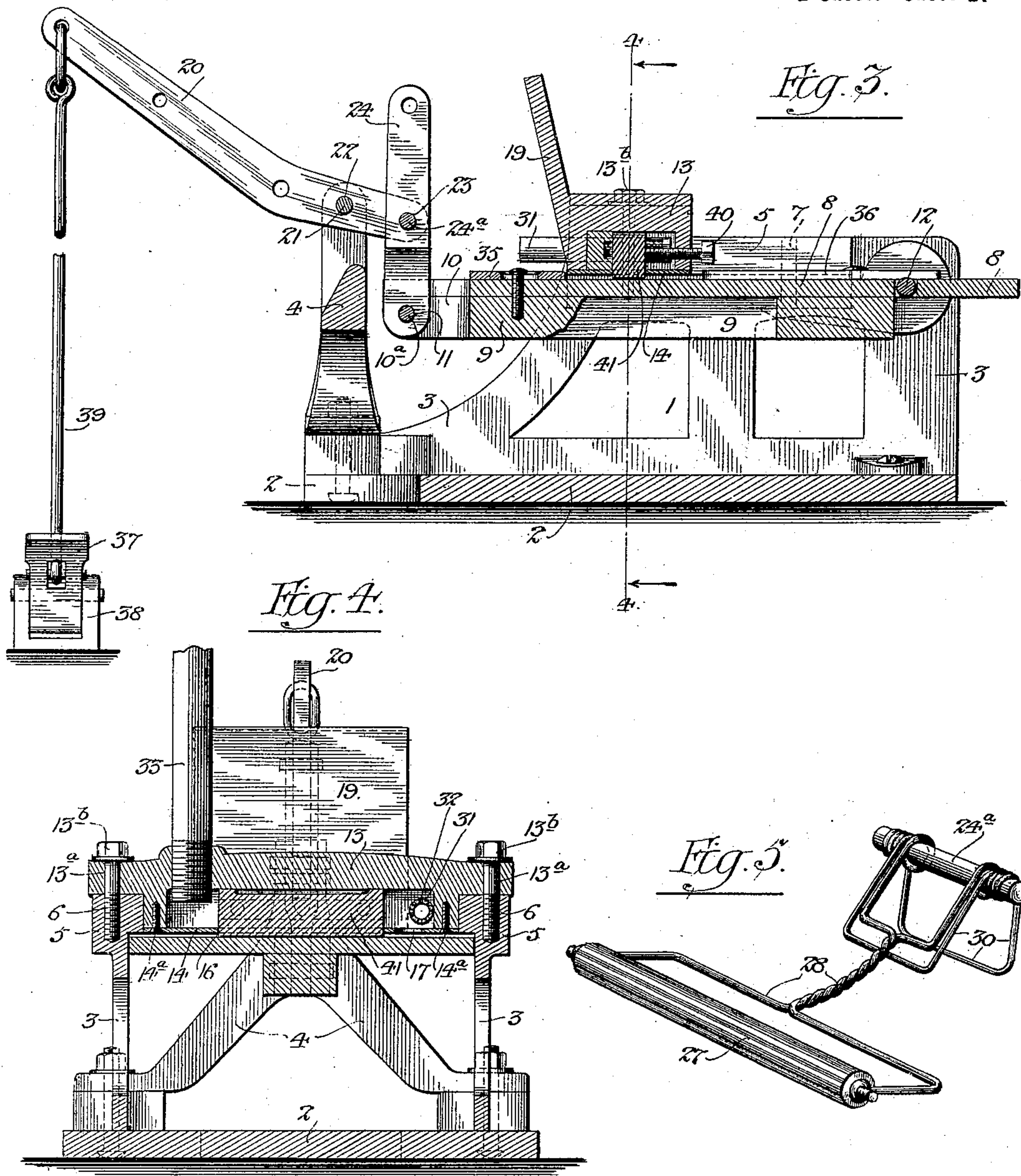
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Witnesses :-

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UNITED STATES PATENT OFFICE.

WILLIAM ALBERT BILLMAN, OF GRAND JUNCTION, COLORADO.

PHOTOGRAPHER'S PRINTING AND EMBOSSING PRESS.

SPECIFICATION forming part of Letters Patent No. 619,713, dated February 21, 1899.

Application filed November 26, 1897. Serial No. 659,843. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ALBERT BILLMAN, a citizen of the United States, residing at Grand Junction, in the county of Mesa and State of Colorado, have invented a new and useful Photographer's Printing and Embossing Press, of which the following is a specification.

My invention relates to a printing and embossing press especially adapted for use by photographers in embossing and printing the card-mounts of photographs; and the object that I have in view is to provide a simple construction in which the parts are assembled together in a novel manner to enable the structure to be used either for the purpose of printing on the photographic mounts or to emboss the latter.

A further object that I have in view is to provide an improved structure in which provision is made for heating the embossing-die when it is desired to emboss the photographic card-mounts, and provision is also made for increasing the leverage on the working parts of the press, so that the embossing may be produced to the best advantage.

A further object of the invention is to provide a simple construction by which the type-surface is automatically inked when the press is used for printing on photographic card-mounts.

With these ends in view the invention consists of a chase, an embossing-die and a heater therefor, and a printing-plate interchangeable with the die and adapted to be secured within the chase, combined with a lever arranged to be fulcrumed on a frame to secure variable power for said lever, a reciprocating bed hung for movement toward the chase and linked to said lever to be forced with considerable pressure toward the embossing-die and to be moved with less pressure against the printing-plate, and an inking device mounted detachably on the lever to be operated thereby in unison with the reciprocating bed.

The chase is adapted to contain the type-form or the embossing-die, according as the press is to be used for printing or embossing purposes. In connection with the chase and the embossing-die heating appliances are provided, by which the embossing-die may be heated to facilitate the embossing operation;

but when the press is to be used for printing purposes the embossing-die and the heating appliances are removed from the chase, and in lieu thereof I employ a suitable type-form, which is mounted in the chase, and an automatic inking mechanism is connected to the operating-lever for the purpose of having said lever work both the reciprocating bed and the inking mechanism.

The invention further consists in the novel construction and arrangement of parts and in the combination of elements, which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the same in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a press constructed in accordance with my invention and having its elements arranged for the purpose of printing on photographic card-mounts. Fig. 2 is a vertical longitudinal sectional view through the press shown by Fig. 1. Fig. 3 is a vertical longitudinal sectional view somewhat similar to Fig. 2, but showing the press constructed and arranged to emboss card-mounts. Fig. 4 is a vertical transverse sectional view on the plane indicated by the dotted line 4-4 of Fig. 3, looking in the direction indicated by the arrows. Fig. 5 is a detail perspective view of the inking-roller and its spring detached from the operating-lever and the inking-platen of the press.

Like numerals of reference denote corresponding parts in each of the several figures of the drawings.

The frame 1 of my improved press consists of a bed-plate 2, the side pieces 3, and the standard 4. The side pieces are arranged parallel to each other at opposite sides of the bed-plate 2, to which said side pieces are firmly secured in a suitable manner, and these side pieces are provided with the top rails 5, arranged in horizontal positions and parallel to each other.

8 designates the reciprocating bed, consisting, preferably, of a flat metallic plate having on its under side a central longitudinal arm 9, which is united to or made integral with the plate of said reciprocating bed. One end of this arm is projected beyond the free end of the plate constituting the work-

ing surface of the reciprocating bed, and said arm is provided at its projected end with a longitudinal fork or bifurcation 10, which is transversely perforated at 11 to receive a piv-
 5 otal rod or bolt, presently referred to.

The reciprocating bed is arranged longitudinally with relation to the supporting-frame and between the parallel side pieces 3 thereof, and one end of this bed is hinged or fulcrumed
 10 to the side pieces of the frame by means of a transverse fulcrum rod or bolt 12, suitably attached to the plate of the reciprocating bed and to the side pieces 3 of the supporting-frame, near one end of the latter. The recip-
 15 rocating bed is thus hung or suspended at or near one end within the supporting-frame to have vertical reciprocating movement or play therein and toward or from the chase 13, which is mounted upon the rails 5 of the parallel
 20 side pieces of the framework.

The chase 13 is arranged in a horizontal position transversely across the supporting-framework, substantially at right angles to the side pieces 3 thereof, and said chase rests
 25 directly upon the top rails 5 of said side pieces. I prefer to provide the chase with recesses at its ends, substantially as shown by Figs. 1 and 4, to constitute the seats adapted to fit snugly against the upper and inner faces
 30 of the top rails 5, thus seating the chase firmly upon the side pieces of the supporting-frame. The recessed ends of the chase are provided with vertical bolt-holes 13^a, through which are passed the securing-bolts 13^b, adapted to
 35 be fastened either in the openings 6 of the top rails 5 or in the openings 7 of said top rails, according as it is desired to bring the chase closer to or away from the pivotal rod or fulcrum 12 of the reciprocating bed, as will
 40 hereinafter more fully appear. Said chase is open on its lower side to provide for the introduction therein of an embossing-die or a type-form or stereotype-plate which constitutes the printing-surface of the printing-
 45 press, and suitable clamping-bolts 40 are provided to secure the die or the plate or the type-form in the chase, according as it may be desired to use the press for embossing or for printing purposes.

50 When the chase is to be used in connection with an embossing-die and with heating appliances for said die, substantially as shown by Figs. 3 and 4, I employ a removable plate 14, which is fitted laterally against the lower
 55 open side of the chase and is secured rigidly thereto by means of screws or their equivalents 14^a, which pass through openings in the ends of the plate 14 and into suitable sockets provided in the chase between the chamber
 60 therein and the recessed seats at the ends of said chase. This plate 14 has a longitudinal slot 16, through which the embossing-die 41 may be projected for a slight distance to bring its working surface in operative relation to
 65 the reciprocating bed, and said plate 14 is further provided with an air-inlet opening 17, through which a proper supply of air may

be drawn to support the combustion at the burner provided for heating the embossing-
 die 41 within the chase. The clamping-screws 70
 40 find suitable bearings in the rear side of the chambered chase, and the heads of said screws project beyond the chase to be readily accessible for the purpose of adjusting the screws in order to clamp the embossing-die 75
 in the chase or to remove it therefrom.

As shown by Fig. 3, the embossing-die which I prefer to employ is of a width less than the cross-sectional area of the chamber in the chase, and said die is thus arranged in the
 80 chambered chase to provide for the passage or circulation of the heat around the die and longitudinally of the chase, so that the die may be properly heated.

The means for heating the embossing-die 85 consists of a burner 31, which is passed through a suitable opening 32 in the front side of the chase 13, so that the burner may be projected into the chamber of the chase. This burner is provided with one or a plurality of trans-
 90 verse openings, substantially as shown by Figs. 3 and 4, to form therein radial flame-openings for the passage of the gaseous fuel, which fuel may be ignited by inserting a
 95 lighted match or taper through the air-inlet opening 17 in the plate 14. One end of this burner-tube projects beyond the chase, substantially as shown by Fig. 3, and to said end of the burner-tube is attached a suitable sup-
 100 ply-pipe by which the gaseous fuel may be conveyed to the burner-tube from any suitable source of supply.

The heat generated by the combustion of fuel at the burner-tube is adapted to circulate longitudinally within the chamber of the
 105 chase 13, and an outlet and draft tube 33 is suitably secured to the upper side of the chase 13. This burner-tube 31 and the outlet-tube 33 are arranged at opposite ends of the chase in order that the heat may circulate through
 110 the chamber of said chase, and the burner and the vent-tube are secured detachably to the chase 13, so that the parts may be moved when it is desired to use the press for printing pur-
 115 poses.

The reciprocating bed 8 is actuated by means of an operating-lever 20, which is fulcrumed, as at 21, to the upper end of the
 120 standard 4. This operating-lever is bent at a point intermediate of its length, and it is provided in its short arm with the apertures 22 23. The lever is operatively connected to the projecting end of the arm 9 on the recip-
 125 rocating bed by means of a link 24, the lower end of which is fitted in the forked end 10 of the arm 9 and attached thereto by means of a transverse pin 10^a, which passes through the perforations 11 of the arm 9 and a suit-
 130 able opening in the lower extremity of the link 24. This link 24 is connected at its upper end to the short arm of the lever by means of a pin 24^a, which passes through the opening 23 at the extremity of the lever and a suitable opening in the upper extremity of the

link; but the link 24 is further provided with a transverse opening 25, which may be adjusted to receive the bolt or fulcrum-pin 24^a, so that the link may be shortened when it is desired to apply considerable leverage to the reciprocating bed in the operation of the machine as an embossing-press. (See Fig. 3.)

The chase 13 is provided with an inking plate or platen 19, which is rigidly secured to or made integral with one side of the chase. This inking-platen is arranged in a vertically-inclined position to face toward the operating-lever 20, and the lower edge of said inking-platen 19 terminates at or near the lower open side of the chambered chase. The inking-platen is designed to remain permanently attached to the chase 13 even when the press is used for embossing purposes, and under these conditions of service the inking-platen does not in any way interfere with the proper operation of the machine.

The inking-roller 27 is carried by a spring-bail 28. As shown by Fig. 5 of the drawings, this spring-bail is made from a single piece of wire which is bent to form the divergent arms having eyes to receive the journals of the inking-roller 27, and said wire is also twisted together in a manner to form a stout carrying shank or arm and a loop by which the bail is pivotally attached to the fulcrum pin or bolt 24^a of the lever 20. The loop at the heel or rear end of the carrying-bail is fitted to the fulcrum-pin 24^a on opposite sides of the operating-lever 20, thus making the carrying-bail straddle or embrace said lever. The bail is normally pressed in an upward direction by a pressure-spring 30, preferably of the form shown by Figs. 1, 2, and 5. In this embodiment of the spring I prefer to make it from a single piece of stout wire which is bent into loop form and provided with the eyes to fit the fulcrum-pin 24^a, one loop or member of the spring fitting against the shank of the carrying-bail, while the other loop or member of the spring bears against the link 24, which connects the lever to the reciprocating bed. The function of this pressure-spring is to lift the pivoted bail and the inking-roller upwardly against the type-face of the form or plate 43, which is clamped in the chambered chase by the screws 40, as represented by Fig. 2; but when the lever is depressed and its short arm is thereby raised to draw the inking-roller across the face of the chase and toward the vertically-inclined inking-platen 19 the shank of the bail 28 is adapted to yield or give in order that the inking-roller may clear the angle or corner of the chase, so as to ride against the inked face of the platen 19, thus supplying the inking-roller with a fresh quantity of ink to be applied to the type-faces of the form or plate 43.

My improved press may be operated by hand by grasping the operating-lever 20 and reciprocating it in a vertical direction; but, if desired, I may combine with this operating-lever 20 a treadle-lever 37. This treadle-le-

ver is fulcrumed in a suitable support 38, fastened to the floor in any convenient place, and said treadle is operatively connected with the lever 20 by a suitable pitman or link 39, substantially as shown by Fig. 3.

To properly position the photographic card-mounts on the reciprocating bed to receive the inked impressions from the plate or type-form 43 or to enable the embossing-die 41 to impress the photographic cards, I provide the reciprocating bed with the gages 35 36. The gage 35 is adjustably fastened to the reciprocating bed near the end thereof to which the link 24 is pivoted to limit the endwise adjustment of the cards on the bed, while the other gage 36 is fastened to the reciprocating bed near one side thereof to limit the edgewise movement of the photographic cards in slipping them along the upper face of the reciprocating bed.

The operation of my machine may be described briefly as follows: To adapt the structure for service as a printing-press, the embossing-die 41, the burner-tube 31, the outlet-tube 33, and the plate 14 are disconnected from the chase 13. The chase is fastened on the top rails 5 in a position away from the hinge-rod 12 by passing the bolts 13^b through the holes 6 in the top rails, thus making the chase assume the position shown by Figs. 1 and 2 and bringing the inking-platen 19 in proper relation to the operating-lever 20. Said operating-lever is fulcrumed to the standard, as shown by Fig. 2, and the link is connected to the extremity of the short arm of the lever, after which the inking-roller-carrying bail and its pressure-spring are connected to the fulcrum-pin 24^a to properly present the inking-roller to the platen 19 and the form or plate 43, which is clamped in the chase. The gages 35 36 having been properly adjusted on the reciprocating bed 8, the card or photographic mount is placed on the bed and the lever 20 is operated. The elevation of the short arm of this lever 20 reciprocates the inking-roller from beneath the chase and lifts the same into contact with the platen 19, and at the same operation the bed 8 is elevated to press the card thereon against the inked faces of the form or plate 43 in the chase. As the lever 20 is reversed the inking-roller is carried across the face of the form or plate 43 to ink the latter, and the bed is lowered to permit the printed card to be removed therefrom and a new card to be placed thereon, after which the operation is repeated.

When the structure is to be used as an embossing-press, it is desirable to increase the leverage in order to press the work with sufficient force against the die 41 to secure the desired embossing on the work. To this end I proceed to detach the inking-roller, its bail, and the spring and to remove the type-form or plate 43 from the chase. The chase may now be adjusted on the top rails 5 toward the hinge-rod 12 and fastened in place by passing the bolts 13^b into the apertures 7 of said

top rails. The lever is adjusted by fitting its fulcrum-pin 21 in the opening in its angular arm, and the link 24 has the pin 24^a fitted in the opening 25 thereof, thus materially in-
 5 creasing the leverage. The embossing-die is now adjusted in the chambered chase and held therein by the clamping-screws 40. The heating-burner 31 and the outlet or vent tube 33 are attached to the chase, and the plate 14
 10 is fastened to the lower open side of the chase to have the working face of the embossing-die project through the slot therein. The fuel is now admitted to the burner-tube 31 and the fuel is ignited by inserting a lighted
 15 match or taper through the opening 17. The heat generated by the combustion of the fuel circulates in the chamber of the chase and heats the die, after which the heat escapes through the vent-tube 33. The photographic
 20 mount or the work to be embossed is placed in the bed and the lever 20 is operated to raise the bed and work against the exposed face of the embossing-die. It will be understood that it is not strictly necessary to change
 25 the position of the chase 13 closer to the fulcrum or hinge of the reciprocating bed; but for some classes of work it is desirable to so adjust the chase, particularly when very great leverage is desired to be secured between the
 30 working parts of the machine.

It is evident that slight changes in the form and proportion of parts and in the details of construction may be made without departing from the spirit or sacrificing the advantages
 35 of the invention, and I therefore reserve the right to make such changes and alterations as properly fall within the scope of the invention.

Having thus described my invention, what
 40 I claim as new, and desire to secure by Letters Patent, is—

1. In a photographer's printing and embossing press, a fixed chambered chase having an opening in the lower face thereof, an
 45 embossing-die and heating appliances therefor arranged removably within said chambered chase for the working face of the die to be exposed through the lower face of said chase, and a printing-plate interchangeable
 50 with the embossing-die and the heating appliance therefor and adapted to be secured in said chase for the face of said plate to be exposed through the lower side of the die, combined with a reciprocating bed arranged
 55 below the chase and movable toward the die or plate therein, a lever connected to said bed, a shiftable fulcrum for said lever to increase the leverage on the bed when used in connection with the heatable embossing-die
 60 and an inking-roller mounted detachably on the lever to be actuated thereby in unison with the platen when the printing-plate is fixed in the chase, substantially as described.

2. In a photographer's printing and embossing press, a horizontal, fixed, chambered
 65 chase having an opening in the lower side thereof and an inclined inking-platen dis-

posed above said chase, an embossing-die and heating appliances therefor fitted detachably
 70 within said chambered chase for the working face of the die to be exposed through the lower side of the chase, and a printing-plate interchangeable with the embossing-die and its heating appliance and adapted to be se-
 75 cured in a fixed position in the chase for its face to be exposed through the lower side of said chase, combined with a reciprocating bed hung for movement toward or from the lower
 80 side of the chase, a lever connected with said bed, a shiftable fulcrum for said lever to increase the leverage on the bed when used in connection with the heatable embossing-die
 and a roller-bail mounted detachably on said lever to traverse the inking-platen and the
 85 face of the printing-plate and operated by the lever in unison with the reciprocating bed, substantially as described.

3. In a photographer's printing and embossing press, the combination with a chase,
 90 an embossing-die and a heater therefor, and a printing-plate interchangeable with the die and heater and adapted to be secured within the chase, of a lever arranged to be fulcrumed
 95 on a frame to secure variable power to said lever, a reciprocating bed hung for movement toward the chase and linked to said lever to be forced with considerable pressure toward
 the embossing-die and to be moved with less pressure against the printing-plate, and an
 100 inking device mounted detachably on the lever to be operated thereby in unison with the reciprocating bed, substantially as described.

4. In a photographer's printing and embossing press, the combination with a frame,
 105 a chase, the interchangeable printing-plate and heatable embossing-die adapted to be fixed separately in said chase for the working face thereof to be exposed through said chase,
 an angular lever having a shiftable fulcrum connection with said frame, a reciprocating
 110 bed hung to the frame below the chase and having a link united by a shiftable pivotal connection with said lever, and an inking device mounted detachably on the lever to be
 115 operated thereby in unison with the bed when the printing-plate is fixed in the chase, substantially as described.

5. In a press, the combination with a frame, of a reciprocating bed hung to said frame, a
 120 horizontal chase having a chamber and an open lower side and fixed to said frame for adjustment toward or from the pivotal connection between the bed and frame, a lever
 having a shiftable fulcrum connection with said frame, and a link pivoted to the bed and
 125 having a shiftable pivotal connection with the lever, substantially as described.

6. In a press, the combination with a chase, and a reciprocating bed, of an operating-lever
 130 linked to said bed, a yieldable bail mounted on said lever and carrying an inking-roller, and a pressure-spring actively fitted to the lever and bail to hold the inking-roller in position to traverse the lower side of the chase

as the bed recedes therefrom, substantially as described.

7. In a press, the combination of a chase having an open lower side and an inclined inking platen projecting above said chase, a frame, a reciprocating bed arranged below the chase and hung to the frame, a lever having a short arm linked to the bed, a carrying-bail mounted loosely on the short lever-arm at the point of pivotal connection between the lever and link, an inking-roll journaled in the free end of said bail, and a pressure-spring actively fitted to the lever and the pivoted bail to normally hold the latter in a position for the roll to traverse the inking-plate and the lower side of the chase, substantially as described.

8. The combination with a reciprocating bed and an operating-lever therefor, of a chase fixed above said bed and having an open lower side, a plate or die clamped in said base, a slotted plate fastened to the base and having the working surface of the die projected through its slot, and heating appliances mounted on said chase for heating the embossing-die therein, substantially as and for the purposes described.

9. The combination with a reciprocating bed, of a chambered chase having an open lower side, a slotted face-plate fixed to said lower side of the chase, an interchangeable printing-plate and embossing-die adapted to be fitted in said chase to have the working face thereof exposed through the slot in said

plate, and means for actuating the bed, substantially as described.

10. In a press, substantially such as described, the combination with a bed, of a fixed chambered chase provided at its lower side with a slotted plate, a heater or burner situated in the chamber of said chase at one end thereof, a vent-tube connected to said chase and communicating with the chamber thereof at the opposite end from the burner, for establishing a circulation through the chase-chamber, an embossing-die secured to the chase to project through the slotted plate thereon and extending into the chase-chamber for exposure to the heat circulating therein, and a supply-pipe connected to the burner, substantially as described.

11. In a press, the combination with a bed, a chase, and an operating-lever, of a carrying-bail having a flexible shank and pivotally connected to said operating-lever, an inking-roller supported by said bail, a pressure-spring seated against the lever and said bail, and an inking-platen mounted on the chase, substantially as and for the purposes described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM ALBERT BILLMAN.

Witnesses:

T. S. RAMEY,

U. G. RAMEY.