Jan 6, 1931. H. C. BOEDICKER 1,787,662

METHOD OF PHOTOGRAPHIC COMPOSING FOR PRINTING PLATES AND APPARATUS THEREFOR

Filed May 17, 1927 4 Sheets-Sheet 1

Fig. 1.

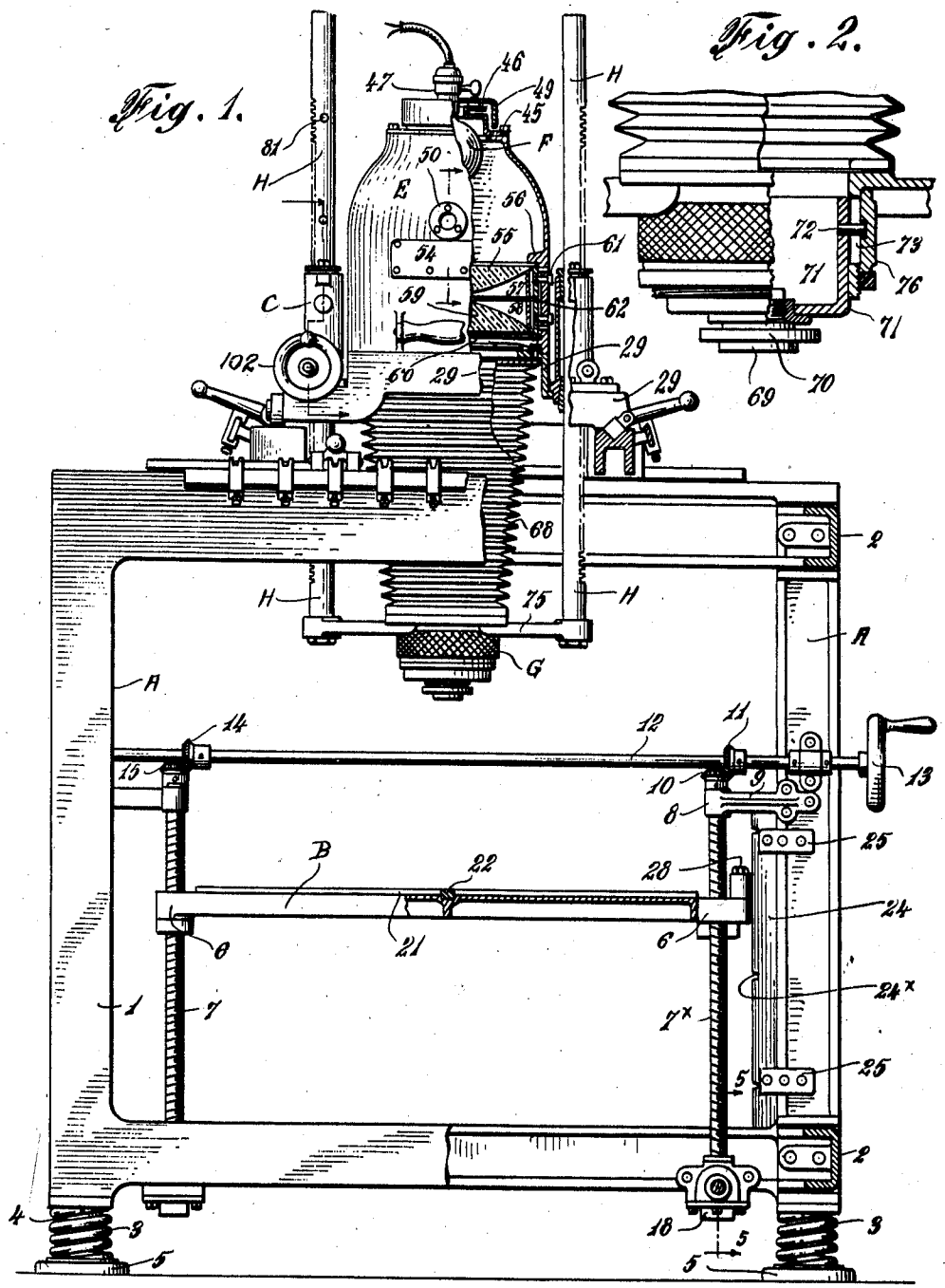


Fig. 2.

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METHOD OF PHOTOGRAPHIC COMPOSING FOR PRINTING PLATES AND APPARATUS THEREFOR

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Fig. 4.

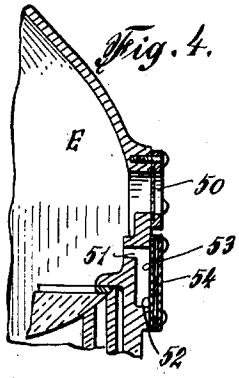


Fig. 3.

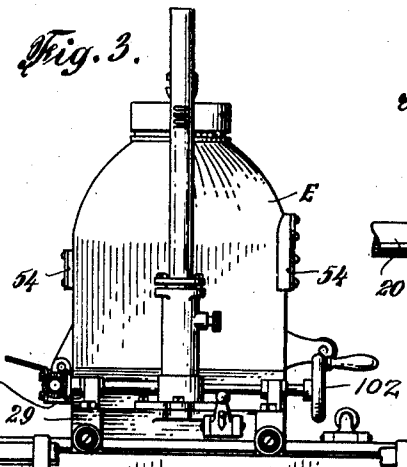
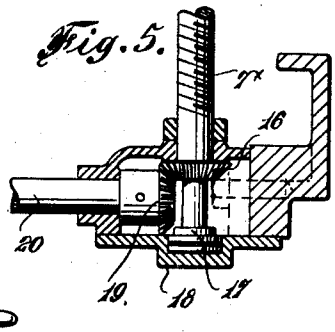


Fig. 5.



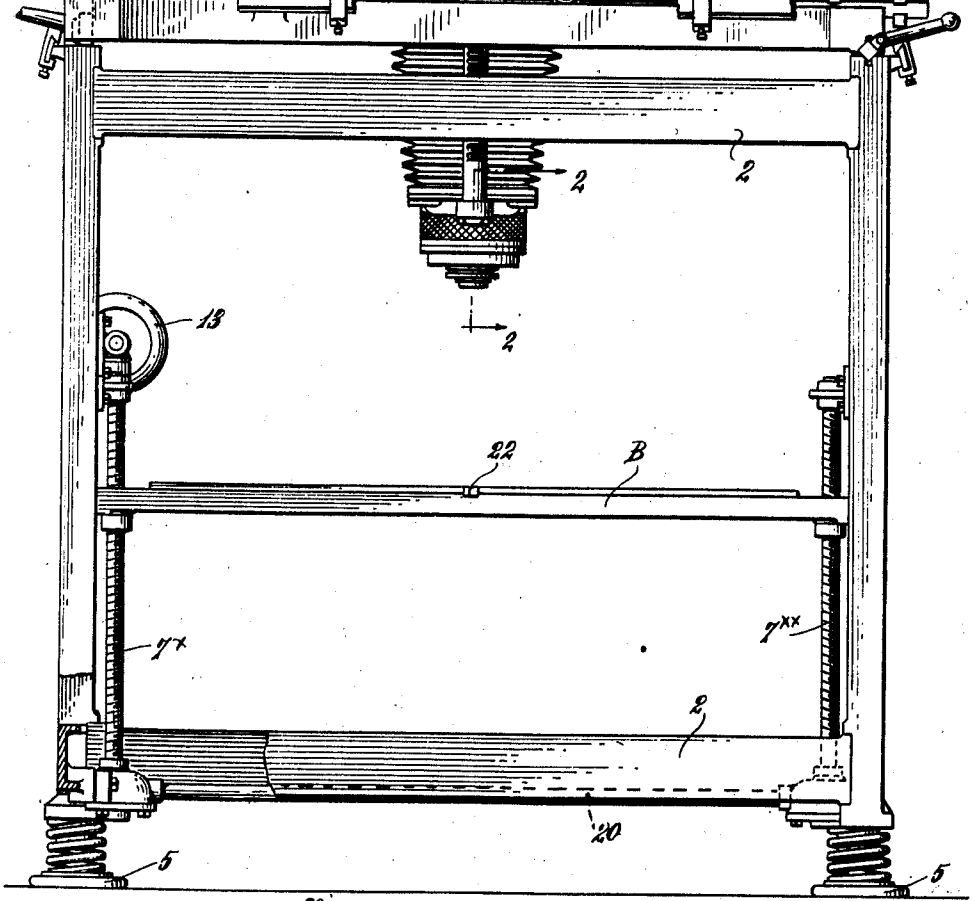
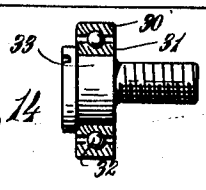


Fig. 14



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METHOD OF PHOTOGRAPHIC COMPOSING FOR PRINTING PLATES AND APPARATUS THEREFOR

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Fig. 6.

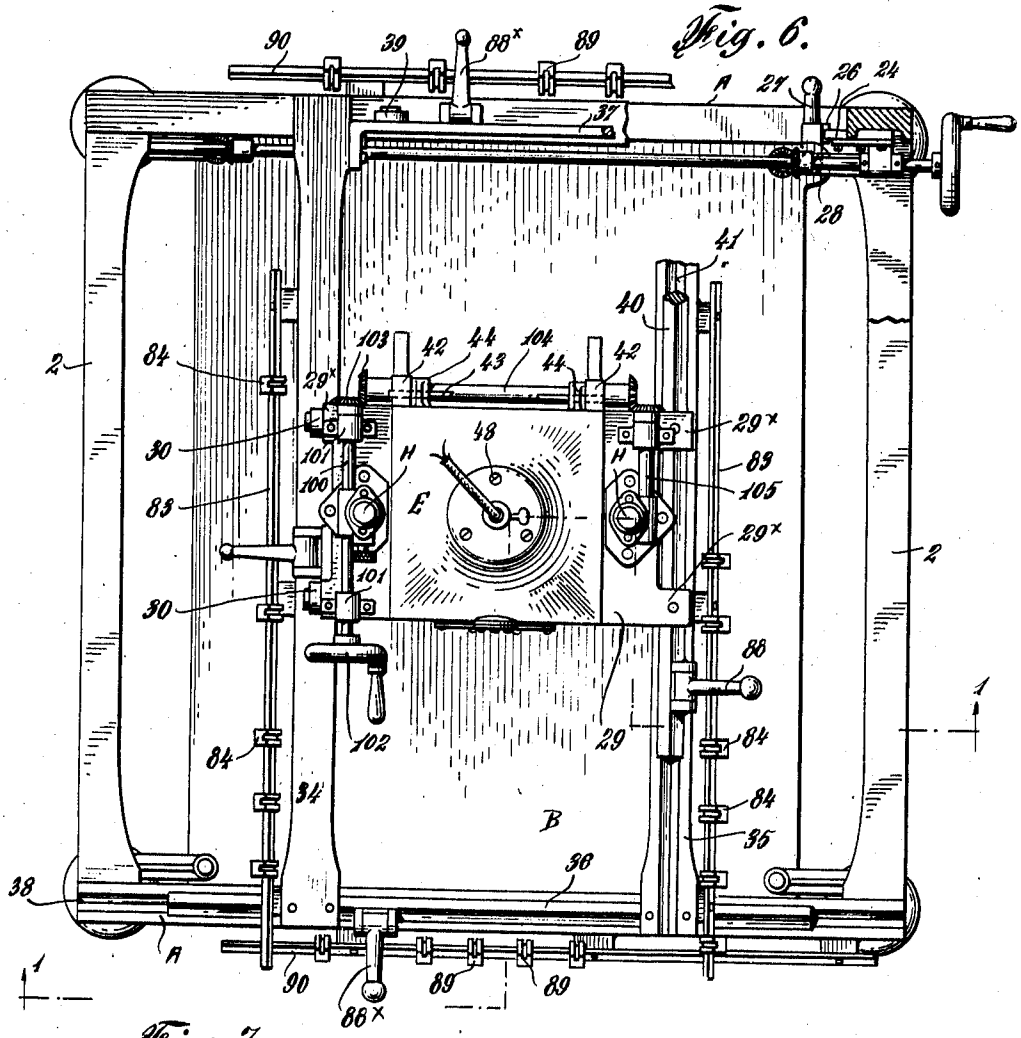


Fig. 7.

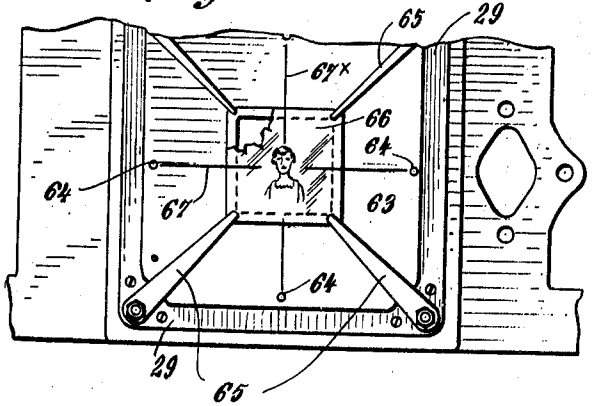
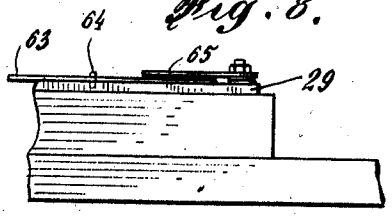


Fig. 8.



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METHOD OF PHOTOGRAPHIC COMPOSING FOR PRINTING PLATES AND APPARATUS THEREFOR

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Fig. 9.

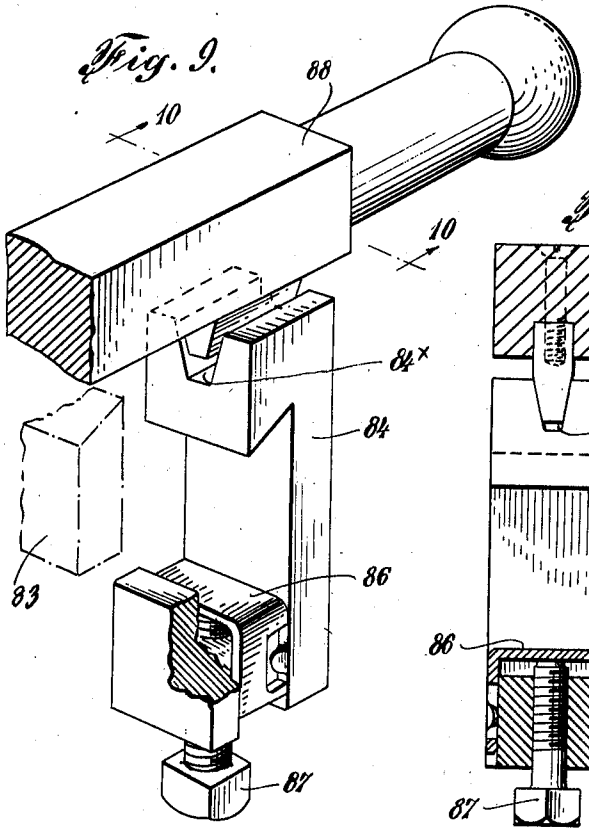


Fig. 10.

Fig. 11.

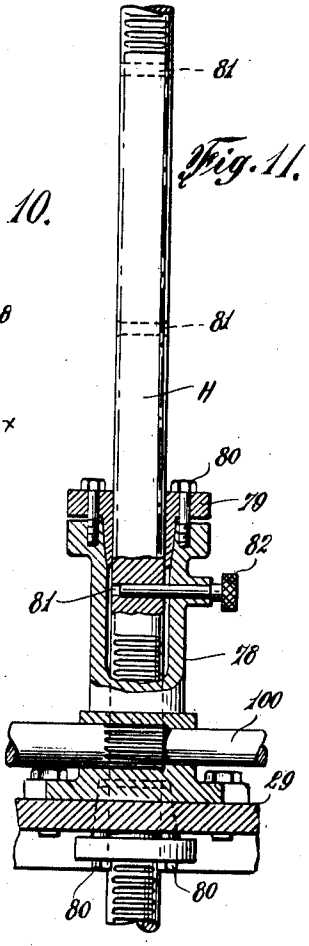


Fig. 12.

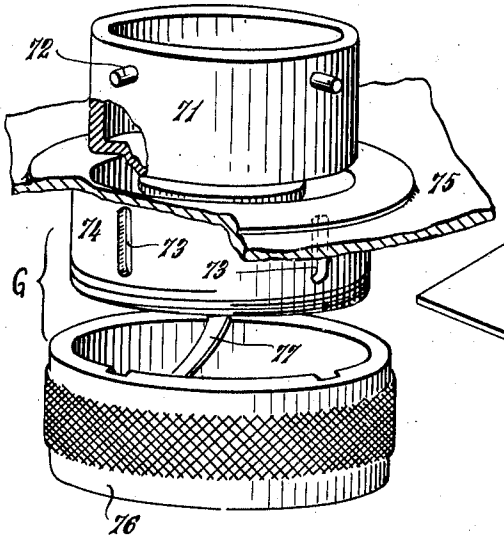
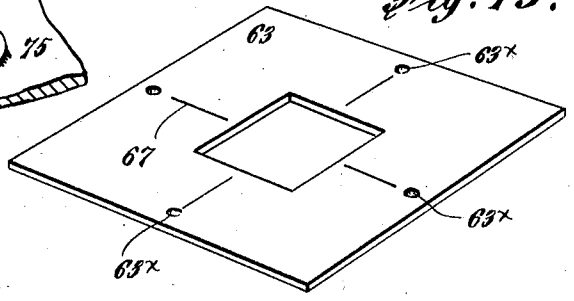


Fig. 13.



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Patented Jan. 6, 1931 1,787,662

UNITED STATES PATENT OFFICE

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METHOD OF PHOTOGRAPHIC COMPOSING FOR PRINTING PLATES AND APPARATUS THEREFOR

Application filed May 17, 1927. Serial No. 192,143.

The object of the present invention is to provide a method of photographic composing for producing step-up negatives, particularly for use in making plates for all types of printing work such as lithography, offset, rotogravure, etc., and a machine adapted for carrying out the method.

The present invention has for its main object the provision of an improved method of photographic composing for producing step-up negatives, particularly for use in making plates for all types of printing work such as lithography, offset, rotogravure, etc., and a machine adapted for carrying out the method. The various specific objects of the invention will hereinafter be brought out in detail.

A feature of the present invention consists in providing a method of projecting a negative onto a sensitized sheet a plurality of times by step-up action, without resetting for each of the spaced projections, by setting-up in advance spacing means such for example as registry blocks or stops and using them as positioning means during the actual successive projecting operations. Such spacing means are provided for the positioning of the projector proper to and fro in two directions at right angles to one another so as to allow of setting for both rows and columns.

A number of advantages resulting from this method will readily be appreciated. The setting up in advance can be done in ordinary daylight and at the leisure of the operator before the sensitized plate is prepared or placed in position and the slightest inaccuracy of setting up in advance can be readily checked and corrected by an over-all checking. During actual exposure of the sensitized sheet the stepping up or step-by-step movement of the projector proper over the sheet requires no skilled control or scrutiny but merely follows the determined setting.

A further feature of the invention consists in the provision of means for predetermining and fixing the relative positions of the projector proper and the sensitized sheet as regards being accurately in focus whether for enlarging, reducing or merely reproducing to the same scale as that of the negative.

The projector proper according to the present invention may also be used as a camera and thereby enable a method of photographic composing to be followed consisting in exposing a sensitized sheet to an illuminated image to form a negative of the image of any desired size, developing the negative, restoring the negative to the position to which it was exposed and projecting the image upon another sensitized sheet a plurality of times by step-up action.

The various specific objects of the invention will hereinafter be brought out in detail.

The invention will be understood by reference to the accompanying drawing in which—

Figure 1 is an end elevation, partly in section (on the line 1—1, Fig. 6) of a machine embodying the invention;

Figure 2 is an enlarged fragmentary view of the lens mounting of the camera;

Figure 3 is a front elevation of a machine embodying the invention;

Figure 4 is an enlarged fragmentary vertical section of the lamp and lens housing;

Figure 5 is a horizontal section through a part of the bearing members for the adjusting shafts for the table;

Figure 6 is a plan view of the apparatus illustrated in Figures 1 and 3;

Figure 7 is a plan view, somewhat fragmentary, of the mask showing a negative in position;

Figure 8 is a fragmentary side elevation of the same;

Figure 9 is a perspective view of one of the carriage locking units, partly in section;

Figure 10 is a vertical section on the line 10—10, Figure 9;

Figure 11 is a view in elevation, and partial section, of one of the bellows, guide bars, its bearing frame, and its actuating shaft;

Figure 12 is a view in elevation in partial section of the lens holder members in separated relation in order to illustrate the method of adjustment;

Figure 13 is a perspective view of the mask, and

Figure 14 is a sectional plan view of one of the adjustable saddle wheels.

Referring to Figures 1, 3 and 6 of the drawings, it will be seen that the device comprises a stationary frame A, which in this instance is rectangular, a vertically adjustable table B and a camera broadly indicated at C and comprising a combined mask and negative holder, an adjustable lens mounting and bellows and a lamp housing, the camera as a whole being horizontally movable in four directions. These units will now be described separately.

The frame.—In the present embodiment of the invention the frame consists of two unitary rectangular end members, one of which is shown in Figure 1 at 1, and transversely extending connecting beams at each side of the frame, the beams being indicated at 2. The frame is yieldingly supported by means of four heavy springs 3 which surround short annular extensions 4 carried by the members 1, the springs resting on broad supporting feet 5.

Any suitable means may be employed to connect the beams 2 and the end members A, it being preferable that the beams be removable for convenience in shipping the machine, although the beams can be welded to the end members if desired.

The table.—The table B consists of a rectangular casing which at each of its four corners is provided with a boss 6 formed with a threaded aperture adapted to receive an adjusting screw, the screws being indicated at 7, 7^{x}, 7^{xx}. The screw 7^{x} is journalled at its top in the apertured boss 8 of bracket 9, and it carries a bevel gear 10 in mesh with a gear 11 on horizontal shaft 12. Shaft 12 extends across the frame and is suitably secured thereto for rotation, being provided with a hand wheel 13. Shaft 12 carries a second gear 14 in mesh with a gear 15 at the top of the shaft 7 opposite shaft 7^{x}. At its lower end shaft 7^{x} carries a bevel gear 16 and the shaft is provided with a thrust bearing 17 carried by a removable plate 18 (Figures 1 and 5). Referring to Figure 5 it will be seen that the bevel gear 16 is in mesh with a bevel gear 19 on a shaft 20, and reference to Figure 3 will show that shaft 20 extends to the other side of the machine where it is connected by like bevel gears (not shown) to shaft 7^{xx}. Shaft 7 is likewise connected to the fourth of the vertical adjusting shafts for the table.

For centering purposes table B is formed with transversely extending grooves to receive the cross bars 21, 22, which bars may fit into grooves formed in a plate holder or may be directly secured to the plate holder and thus be received within the grooves. In this manner the plate or negative holder may immediately be centered relatively to the camera.

The frame contains a combined focusing gauge and lock for the table. The gauge and lock comprise a vertical bar 24 which may be secured to the frame in any suitable manner. In the drawings I have shown the bar bolted to the frame member 1 by means of the brackets 25. The bar projects inwardly toward the table B and is formed with any desired number of wedge-shaped notches 24^{x} to receive a locking key 26 carried by a lever 27 which is pivoted on the table by means of pivot stud 28. The key 26 accurately fits the wedge slots in bar 24 so as to exactly gauge the position of the table and lock the latter in such position. It is necessary to exactly place the table B in the predetermined position before it can be locked. In other words, when the key does not move to final and locking position within slot 24^{x} the table B is not accurately placed. Movement of hand wheel 13 will accurately place the table which will be determined by the fitting of the key within the slot.

The camera.—The camera is adapted for projection of an image upon a sensitized plate held by the table and preferably also for the production of a negative from an image held by the table. The size of either the image projected upon the table or the negative produced by photographing an image resting on the table may be determined not only by adjustment of the table in the manner above described but by adjusting the lens of the camera relatively to the image and the negative held in the camera.

In the embodiment illustrated in the drawing I have provided a rectangular frame or saddle 29 which has four short projecting legs 29^{x}. The two legs at one side of the saddle 29 carry small wheels 30 which are adjustable to raise or lower the saddle, their construction being shown in detail in Figure 14. Each wheel consists of a contact ring rotatable about a bearing ring 31, ball or other suitable bearings 32 being interposed. Bearing ring 31 is carried by the eccentric head of an adjusting screw 33. By rotation of the screw the horizontal axis of the saddle wheel may be raised or lowered for a purpose later to be described in detail. The saddle wheels rest upon a horizontal member 34 of a saddle carriage. The carriage consists of said cross bar 34, a second and parallel cross bar 35 and spaced transversely extending bars 36, 37. Bar 36 is V-shaped at its base to fit within a correspondingly formed guide-way 38 in a horizontal member of frame A. The contact between the saddle carriage and the opposite horizontal frame member is through adjustable wheels 39 (one being illustrated in Figure 6) which are constructed as shown in detail, Figure 14. It will thus be seen that the saddle carriage is movable in two directions on frame A and that the saddle with the members of the camera carried thereby, is

movable in two directions opposite to the directions of movement of the carriage. The support for the saddle opposite wheels 30 comprises a short bar 40 having a V-shaped base resting in a correspondingly formed guide-way 41 in bar 35 of the saddle carriage.

Resting upon saddle 29 and secured in position is a lamp-house E. At the rear of the lamp-house, saddle 29 is formed with apertured brackets 42 through which pass a pivot shaft 43, the lamp-house being pivoted on shaft 43 through apertured ears 44. The lamp-house comprises means for employing an ordinary high-powered incandescent light bulb F, which necessarily includes means for carrying off the heat generated by the light. To this end the top of the lamp-house is closed by a removable three-part cap constituting a light-proof ventilator. The lower member 45 of the ventilator has a flange bolted to the top of the lamp-house as shown in Figure 1. It then extends upwardly and then inwardly.

Above member 45 is a horizontal plate 46 which may be threaded to receive the lamp socket 47. Plate 46 rests upon and is connected to member 45 by three spacer disks through which pass screws 48 as indicated in Figures 1 and 6. Above plate 46 is a cap member 49 having a depending flange which passes below the opening intermediate members 45 and 46, the cap member 49 being supported on member 46 by spacer disks and the screws 48. The arrangement just described provides a light type ventilator for the lamp-house, the hot air being required to pass in reverse directions through the ventilator, the members of the ventilator preventing the entrance of light, which is necessary when the device is used as a camera, and the ventilator also prevents the passage of light from the lamp-house when the device is used as a projector to project an image upon a sensitized plate or plates held by the table B. The lamp-house may be provided with a pilot window 50 and below the window is provided a light type ventilator for the admission of cool air, the ventilator consisting of an outwardly and downwardly extending channel 51 in the lamp-house, which communicates with a slot 52 in a covering plate 53, the latter communicating with an upwardly directed passage intermediate plate 53 and a final covering plate 54, all as shown in detail, Figure 4. By referring to Figure 3 it will be seen that a ventilator identical with that just described is oppositely placed on the lamp-house.

For projecting purposes I may employ a pair of condensers which are indicated in Figure 1. The condensers are placed in the lamp-house when the latter is reversed in position with the ventilator down. At this point condenser 55 is lowered until it rests on the flange 56 of the lamp-house. Ring 57 is then placed in position and a piece of ground glass may be placed upon the ring to diffuse the light. A second ring 58 is then placed in position in contact with the ground glass which separates it from ring 57. The second and lower condenser 59 may then be placed in position. Upon ring 58 may be placed an iron plate indicated at 60, Figure 1, which may be secured in the lamp-house by any suitable means. On four sides of the lamp-house I place adjusting screws. The screws are in sets of two as shown in Figure 1 at 61. Each set engages a fibre strip 62 which strips engage the condensers, so that when the screws are successively turned, they firmly hold the condensers.

The saddle 29 is formed with a central opening for the projection of the light from the lamp-house and also for the passage of the image raise when the device is used as a camera to produce a negative from the image on the table. Resting upon the saddle above its central opening is normally placed a mask 63 which is shown in detail in Figures 7 and 13. The mask is provided with a central opening which will always be slightly smaller than the image to be projected or the sensitized plate. The mask is provided with carefully spaced apertures 63× to receive registering pins 64 carried at the margins of the saddle and said margins also carry spring clips 65 which may serve to hold both the mask and the image or sensitized plate in position, Figure 7 showing an image 66 held in position by the clips.

The mask is engraved with the centering lines 67 which lie at right angles with complementary centering lines 67× which are intended to coincide with similar lines placed on the image sheet or sensitized plate so that the latter may be "square" relative to the plate or image, as the case may be, held by the table B.

At its under face the saddle carries bellows 68, the bellows being provided with an adjustable lens mounting G shown in detail in Figures 2 and 12.

The lens is carried by a ring 69 below a shutter diagrammatically indicated at 70, the assembly being secured to the adjustable carrying ring 71. The carrying ring 71 is provided with a plurality of pins 72 which pass through guide slots 73 in a ring 74 depending from cross plate 75, the plate being apertured at its ends and secured upon the focusing rods H, Figure 1.

Threaded upon ring 74 is an adjusting sleeve 76 in which are formed spiral grooves 77 to receive the ends of pins 72, by rotating adjusting sleeves 76, pins 72, which have a vertical movement only with member 71, are caused to ride up or down, in accordance with the direction of rotation, thus adjusting the lens without rotating it. Focusing rods H

are mounted for adjustment each within a vertical sleeve 78 bolted upon the saddle 29, as shown in detail, Figure 11. Each sleeve is of greater diameter than the focusing rod which it receives. Each sleeve at its top is formed with an outwardly flaring wall to receive a conical split bushing 79 held by adjusting screws 80. By turning down screws 80 at both the top and bottom of sleeve 78 the shaft H will not only be centered but will be held firmly against lateral play and any wear therein may be compensated. At predetermined accurately spaced points on one of the focusing rods H apertures 81 are provided, as indicated in Figures 1 and 11, to receive a locking pin 82 so as to lock the focusing rods and therefore the lens and bellows in accurately predetermined position.

Means are provided for simultaneously actuating the focusing rods H. Each rod is provided with rack teeth. An actuating shaft 100 mounted in bearing bosses 101 and provided with an operating wheel 102 is provided with a toothed ring engaging the teeth of one of the focusing rods. Shaft 100 is connected by gears 103 to a shaft 104 which in turn is connected by bevelled gears to a shaft 105 having a toothed ring engaging the teeth of the second focusing bar (see Figures 6 and 11). By this means the two focusing shafts are moved in unison at exactly the same rate of speed and without any binding.

Means are provided for accurately registering the lateral adjustments of the camera to meet any predetermined positions, and such means will now be described:

Sets of spaced registry blocks or the like may be kept in stock for fitment of the machine at any time. In the case of actual registry blocks these may be adjustably settable along two bars set at right angles to one another, and means such as pivotal engaging handles may be provided on the projector to engage the blocks in succession, each block being for example formed with a wedge-shaped or "key" slot for engagement with a wedge-shaped projection or "key" on the handle, so that their accurate interengagement will ensure a precise and accurate positioning of the projector proper for each individual projecting operation.

The method of operating the machine by predetermining in advance what shall be the entire step-up action has particular advantages in multicolor work as precisely the same advance setting of the spacing means would be adhered to during the series of projections on every sheet of the set of sheets required for the several colors, and consequently the exact and precise registering of the colors in the eventual composite printed matter must occur, provided of course the lithographic or other printer uses the sheets correctly.

At opposite points upon the saddle-carriage are supported bars 83 and adjustably mounted upon said bars are registry blocks 84, the said blocks being shown in detail in Figures 9 and 10. Each bar 83 is sharply bevelled at its top, as indicated in Figure 9, so as to fit within the correspondingly recessed portion of the registry block. At its base the block is provided with an adjustable shoe 86 engaged by a set screw 87. When the registry block, in each case, is moved to its desired position, rotation of said screw 87 will clamp the block in position upon bar 83, the shoe 86 preventing the block from moving from its position when being tightened and the inclined or wedge-shaped upper portion of the block coacting with the like shaped portion of bar 83 to accurately "square" the block relatively to the bar thus placing the key slot $84^{\times}$ of the registry block exactly at right angles to the bar. The registry blocks 84 may be placed in their relative positions on the bar 83 when the latter is placed upon the saddle carriage or before the bar is so placed, and bars upon which blocks have been set for different spacing may be exchanged during the making of the plate requiring a plurality of spacings or may be put away for use when the same spacings are again required, it only being necessary to remove the bars from their supporting pins, as shown in the drawing, or other supporting elements.

Connected either directly to the saddle 29 or to slide bar 40 is a registry key carried by a pivotal handle member 88, the key being wedge-shaped to correspond with the key slot $84^{\times}$. Inasmuch as the key and key slot are wedge-shaped, and assuming the saddle to be a little off the correct position, when handle 88 is swung downwardly, the key and key slot will act as leverage members to bodily move the saddle on the carriage to its exact predetermined position.

The above is a description of the saddle registering means. Like means are provided for the carriage. To this end the carriage at opposite sides is provided with pivotally mounted key carrying handles $88^{\times}$ to engage registry blocks 89 each adjustably mounted on a bar similarly supported by the frame as the bar 33 is supported by the saddle carriage, the construction of the registry blocks, keys and pivotally mounted handles being exactly as shown in Figures 9 and 10.

The operation of the device will now be described:

Making and employing master negatives.— The lamp-house E is, as above stated, light-tight. To make a master negative it is only necessary to place a sensitized plate upon the mask 63 and secure it in position by means of the clips 65. The mask employed will have an opening corresponding to the size of the negative desired. The lamp-house is then closed to the position illustrated in Figure 1.

The image is placed on table B being previously marked with "square" lines such as those indicated at 67, 67×, Figure 7, so as to lie perfectly square on the table coinciding with the cross bars 22. The hand wheel 102 has been or will be turned to bring the lens to the predetermined focusing point for a negative of the same size as the image or of reduced or enlarged size. The adjustment apertures 81 may be so placed relatively to the pins 82 as to indicate predetermined standard adjustments and any adjustments intermediate the standard adjustments may be obtained by rotation of the hand wheel 102. For very fine focusing adjustments ring 76 may be rotated to move the camera lens toward or from the table. The exposure is then made in the usual manner.

The negative may then be developed. After developing the negative the square lines 67, 67× will appear directly thereon. For convenience in placing the developed negative relative to the mask, the latter is removed from the lamp house and the negative placed in position so that its square lines coincide with those on the mask. The negative may then be held on the mask by small pieces of adhesive tape or the like. After the mask with its attached negative is replaced in the lamp, the clips 65 are swung over to hold the assembly in position, as illustrated in Figure 7.

The negative will invariably be placed in exact alignment relative to the table B because of the square line arrangement above described, and the fact that the mask has only one position relatively to the lamp-house, that being exactly square and predetermined by the position of fixed registering pins 64 carried at the margins of the saddle which enter the apertures 63× in the mask.

When the light is turned on within the lamp-house, and without any change of adjustments in the machine, the image on the negative will be projected upon the table. Assuming that a sensitized plate is placed upon the table in squared position thereon, the said projected image may be thrown at one or a predetermined number of spaced positions upon the plate, to produce a single exposure; or a plurality of exactly similar exposures may be made by successive lateral movements of the projector comprised by the lamp-house and its associated members. In the latter case the registry blocks 84, 89 will first be placed in the desired positions, for spacing of the exposures and immediately prior to each exposure the wedge carrying lever 88× or 88, as the case may be, will be swung down to position the projecting elements and lock them at the time of the exposure. The registry blocks and wedge carrying levers therefore act as the final positioning means, as will be seen from the fact that inasmuch as the registry block opening 84× is wedge-shaped, corresponding with the wedge on the lever, should the carriage or saddle, as the case may be, lie even slightly out of position at the time the lever is swung down, the latter will impart that slight correctional movement to the saddle or carriage which is required to secure exact position.

Step-up images may be produced upon a sensitized plate held in the camera by successive movements of the camera relatively to an image supported by table B. In ordinary practice, however, it is preferable, for the sake of sharpness in the individual images, to make a master negative for subsequent projection use within the lamp-house by a single exposure of the image upon a sensitized plate in the camera, developing the plate and projecting the image the desired number of times upon a sensitized plate held upon table B. After developing the latter it can be placed within the lamp-house and by step-up movements relatively to the large sensitized plate on the table B, each step will project a plurality of images upon the plate so that the latter may be very rapidly completed notwithstanding minuteness of the image size. This method is particularly desirable when the plate is intended for subsequent production of cigar bands, stamps, small labels, cutouts, etc., in colors by a plurality of color plates which must mutually register.

The focusing positions of the camera relatively to table B, in such step-up work, will be prearranged by adjustment of the registry blocks 84, 89. Exact predetermined enlargement or reduction may be secured without visual examination of the focusing elements, through the pin and slot devices 82, 81 for the camera and the latch devices combined by the registry bar 24 and key 26.

By projecting a beam of light of the desired thickness and by moving the camera relatively to a sensitized plate on table B, various designs can be drawn upon the plate to produce, upon development, a negative for use in further projection or printing steps.

Having described my invention what I claim and desire to secure by Letters Patent is as follows:—

1. In photographic composing machines, a combined projector and camera, a support upon which the projector-camera is adjustable laterally, a table movable toward and from the projector-camera, a bellows carried by the projector-camera and adjustable registry devices for the bellows and table adapted to lock the two in predetermined focusing positions.

2. In photographic composing machines for printing plates, a combined projector-camera, a saddle supporting the projector-camera, means disposed below the saddle and

permitting movement of the latter with the camera in four directions, and registry-locking devices intermediate the projector-camera and its support and including means for automatically correcting slight inaccuracies in the position of the camera, which means is operable when said registry locking devices are thrown into action.

3. In photographic composing machines, for printing plates, a supporting frame, a table adjustable on said frame, a combined camera-projector carried by the support and including a bellows, means for adjusting the bellows comprising parallel rack bars connected to the bellows, spaced sleeves vertically supported by the frame and receiving the bars, a crank and pinion device for raising and lowering the bars simultaneously and means for locking the bars to hold the bellows in predetermined focal positions.

4. In photographic composing machines for printing plates, a support, a table movable on said support, a combined projector-camera mounted independently of said table for adjustment in planes parallel to the table, a bellows carried by the projector-camera, parallel rack bars connected to the bellows, spaced sleeves vertically supported by the support and receiving the rack bars, and adjustable split-cone bushings intermediate the sleeves and the rack bars for centering and wear-compensating the latter.

5. In photographic composing machines for printing plates, a frame, a table vertically adjustable on the frame, a combined projector-camera, a bellows carried by the projector-camera and adjustable toward and from the table, a saddle upon which the projector-camera is carried, a carriage for the saddle permitting movement of the latter in two directions, and a slidable connection intermediate the frame and the carriage permitting movement of the latter in two directions transversely of those of the saddle.

6. In photographic composing machines, a frame, a projector-camera, a carriage upon which the projector-camera is movable in two directions, a connection intermediate the frame and the carriage permitting movement of the latter in two directions transversely of those previously referred to, coacting registry devices comprising a set of units having tapered recesses and a set of units having tapered keys, one set being carried by the projector-camera, as and for the purpose set forth.

7. In photographic composing machines comprising a frame, a carriage movable in opposite directions on the frame, a combined projector-camera movable in opposite directions on the carriage, a series of registry devices carried by the frame and complementary devices carried by the carriage, a second series of registry devices carried by the carriage and complementary devices carried by the projector-camera, and a table carried by the frame and adjustable toward and from the projector-camera, as and for the purpose set forth.

8. In photographic composing machines for printing plates, a frame provided with a runway at one side and a guide channel at the opposite side, a carriage having a projection entering said channel and having anti-friction means resting upon the runway, a guide channel provided by the carriage and a runway opposite said guide channel, a combined projector-camera and an adjustable connection intermediate the projector-camera and the carriage comprising a projection within the channel of the carriage and an anti-friction device engaging the runway.

9. In photographic composing machines, a frame provided at one side with a guide channel and at the opposite side with a runway, a carriage provided with a member projecting within the guide channel and a roller contacting with said runway, the carriage having opposed members, one of said members being formed with a guide channel and the second member with a runway, and a combined projector camera having a projection entering the guide groove of the carriage and a roller resting upon its runway.

10. In photographic composing machines, a combined projector-camera comprising a light-tight lamp-house, a plurality of pins carried by the lamp-house, a mask having a central opening therein and provided with apertures to receive the pins, square-lines on said mask, a table, and squaring means carried by said table, said means being in register with the square-lines of the mask.

11. A photographic composing machine constructed in accordance with claim 9, in combination with means for adjusting the projector-camera relatively to the roller.

12. A photographic composing machine constructed in accordance with claim 9 in which the roller is carried by an eccentric bearing stud rotatable to adjust the axis of the roller relatively to the projector-camera.

In testimony whereof, I have signed my name to this specification.

HERMAN C. BOEDICKER.