July 22, 1941. J. F. LARY 2,250,309

PRINTING AND ENLARGING TABLE

Filed May 25, 1940 4 Sheets-Sheet 1

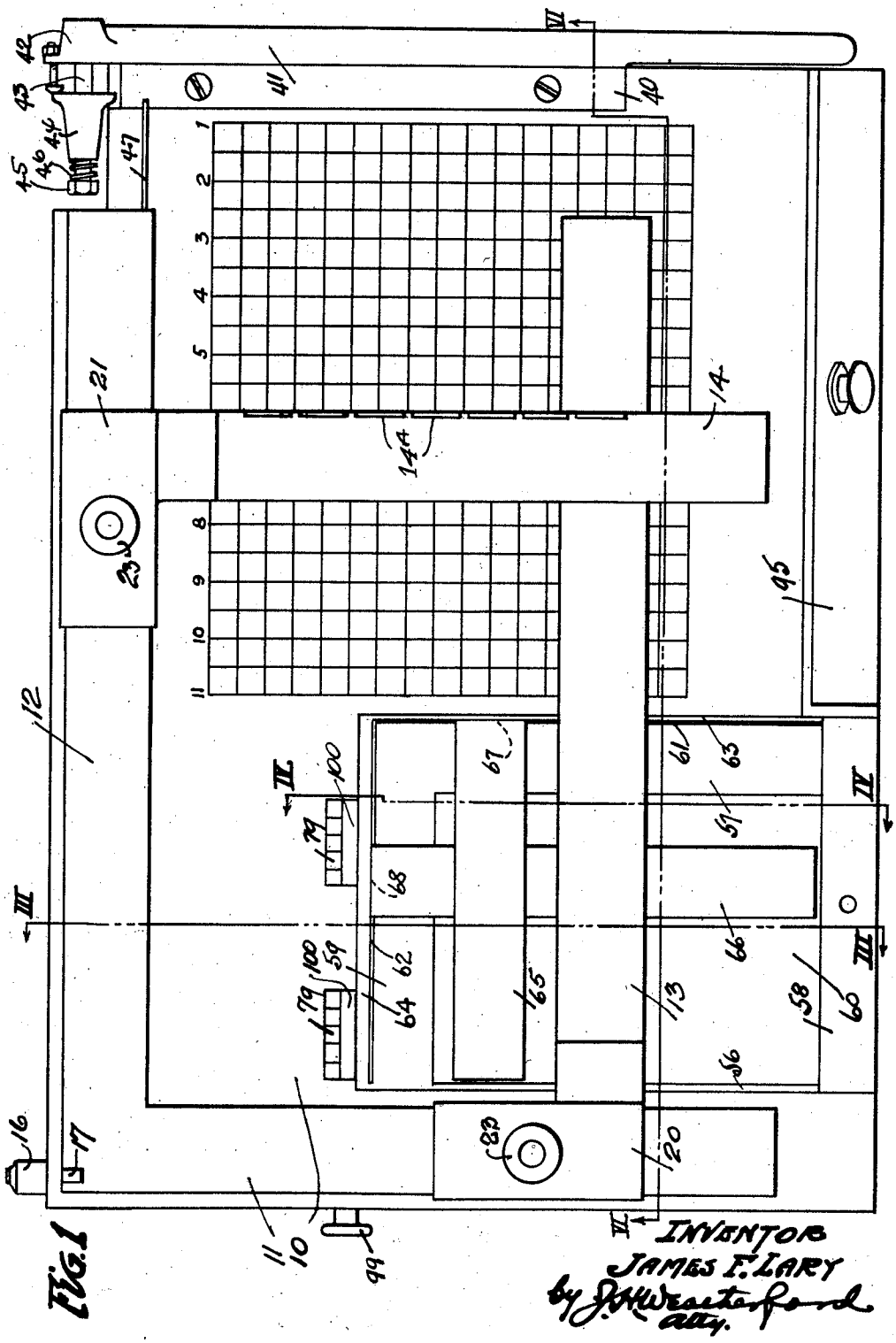


FIG. 1

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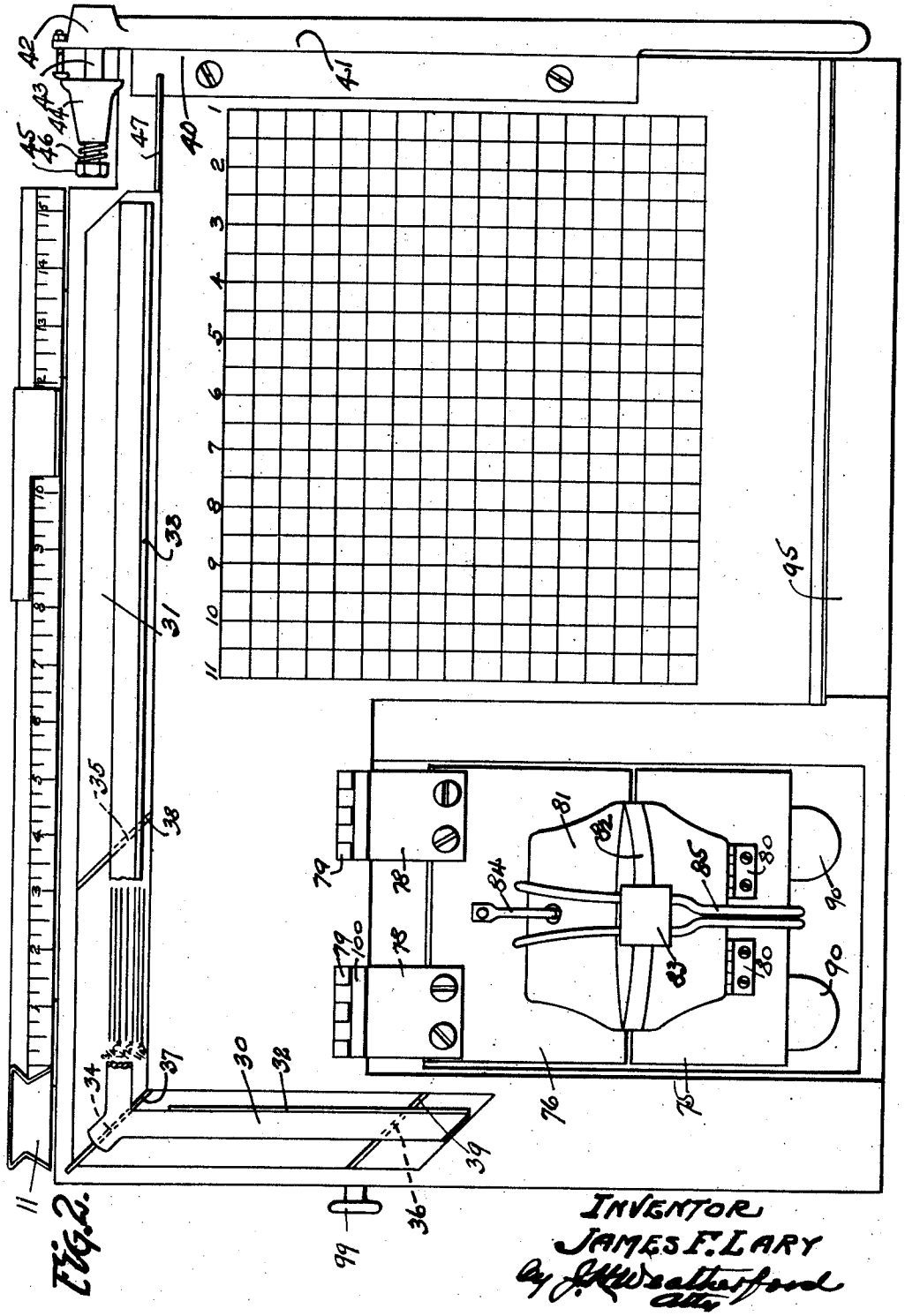


Fig. 2.

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PRINTING AND ENLARGING TABLE

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FIG. 3.

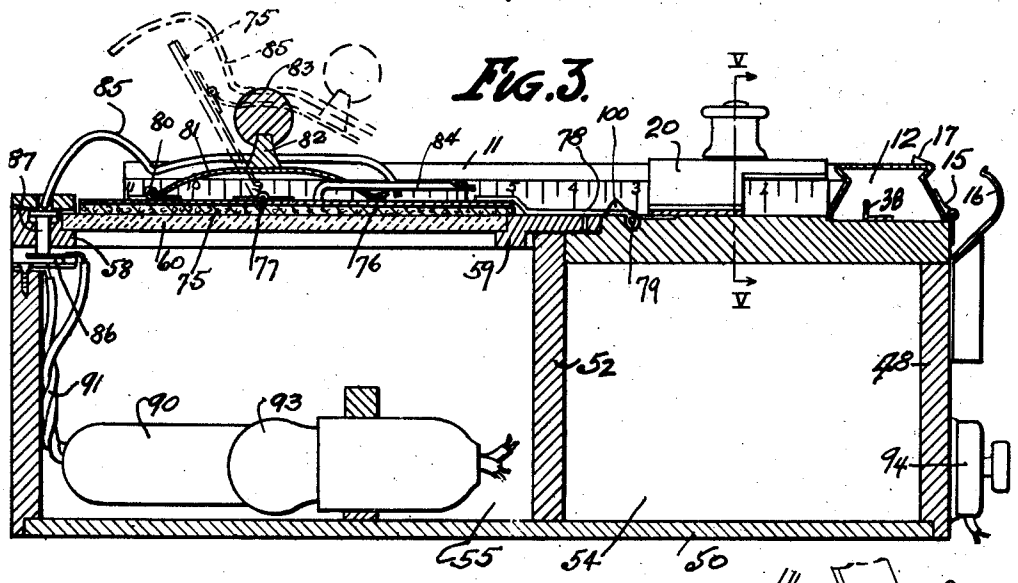


FIG. 4.

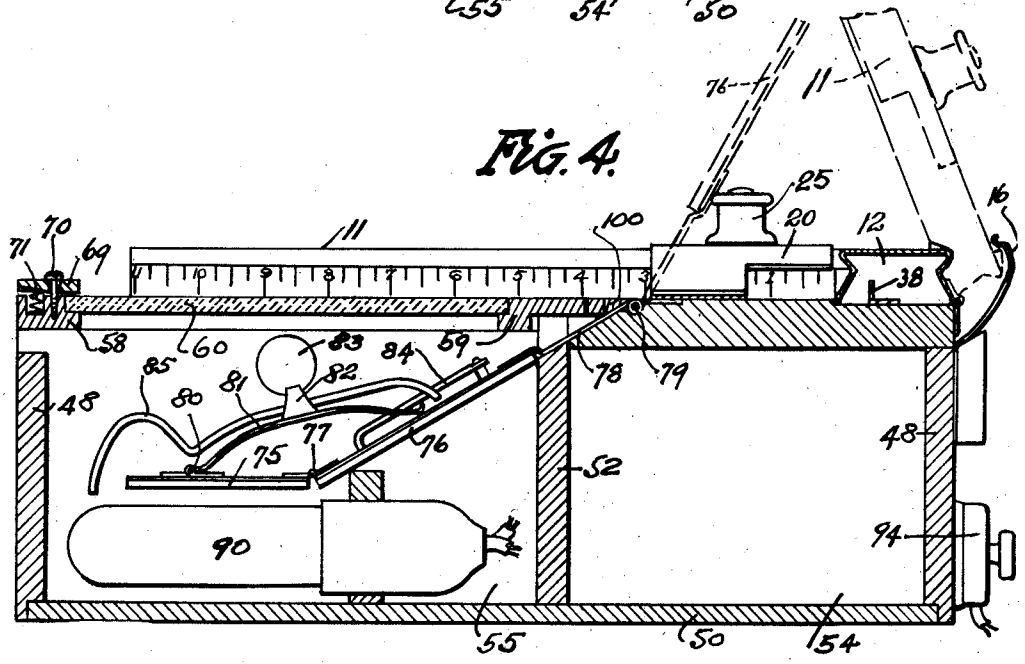
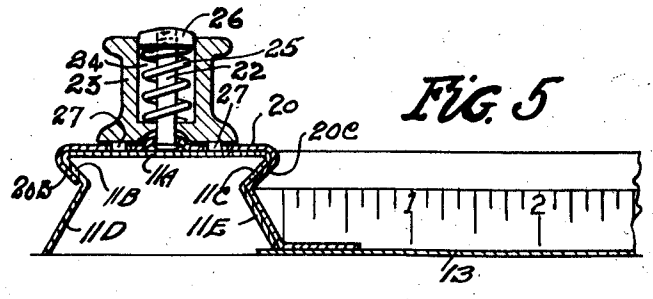


FIG. 5

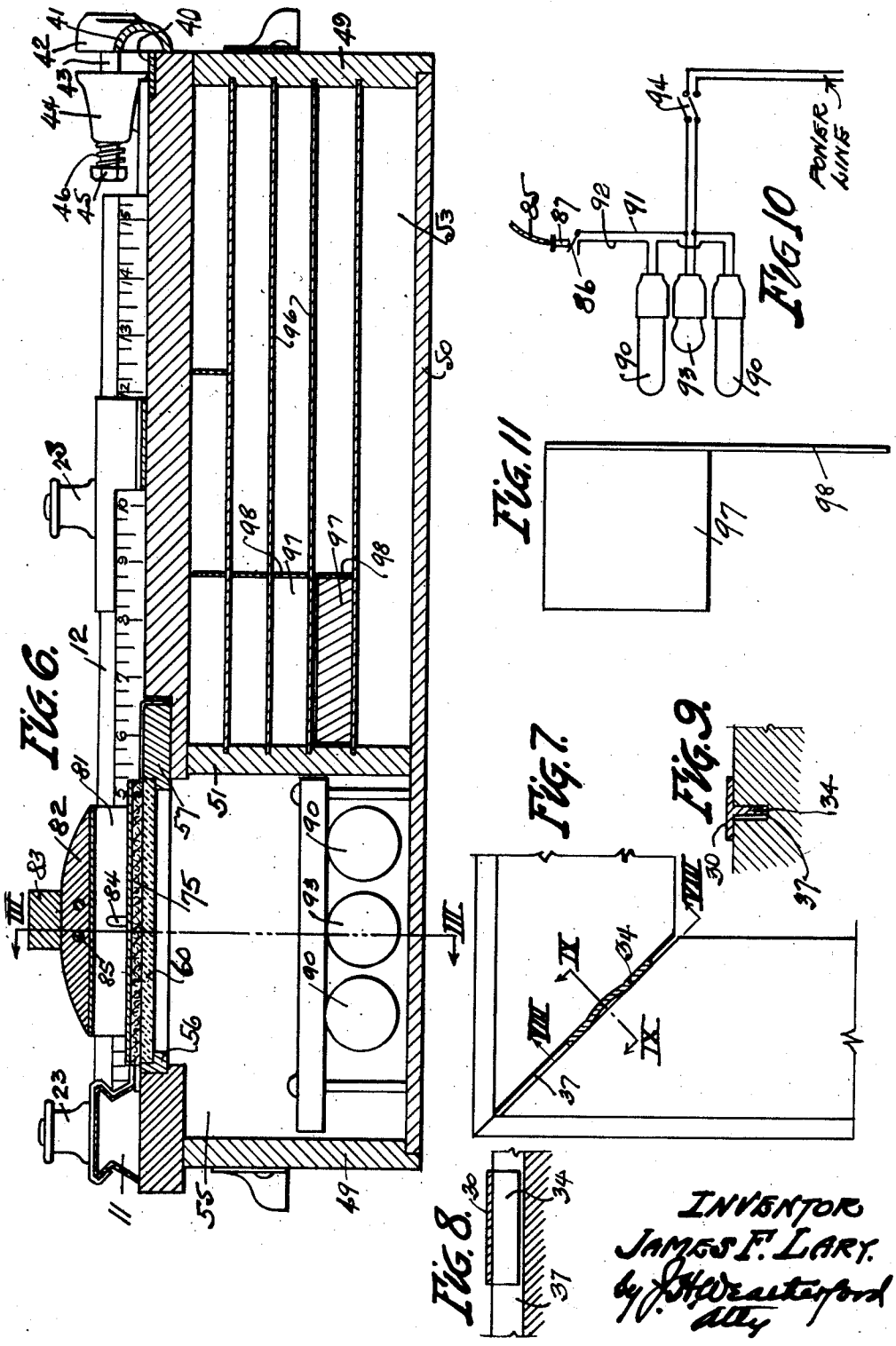


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PRINTING AND ENLARGING TABLE

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2,250,309

PRINTING AND ENLARGING TABLE

James F. Lary, Memphis, Tenn.

Application May 25, 1940, Serial No. 337,135

11 Claims. (Cl. 95—73)

This invention relates to improvements in printing and enlarging easels, and has particular reference to an easel adapted for direct printing and/or enlarging photographic pictures.

The objects of my invention are:

To provide a printing easel through the use of which the functions of printing and enlarging pictures may be readily and easily accomplished, and one which is simple in construction and convenient for use.

A further object is to provide a table of this class having means for alining photographic paper for making pictures, which means may be used in cooperation with a knife for trimming and squaring up the edges of paper or print.

Further objects are to provide readily adjustable means for masking the edges of the paper to provide desired marginal edges and means in connection with the masking means for readily measuring the amount of such masking;

To provide means for making direct or contact prints and for housing portions of the direct printing means to complete the table surface for enlarging purposes; and

To provide means in connection with such a table for storing negatives and for storing assorted sizes of paper for printing and enlarging purposes.

The means by which the foregoing and other objects are accomplished and the manner of their accomplishment will readily be understood from the following specification on reference to the accompanying drawings, in which:

Fig. 1 is a plan view of the complete table on a reduced scale.

Fig. 2 is a similar plan with the masking devices turned vertically upward to expose the table top and with the slide which forms the table for the contact printing portion removed.

Fig. 3 is a vertical sectional elevation of the table taken substantially on the line III—III of Figs. 1 and 6 with the contact printer in position to function.

Fig. 4 is a corresponding view with the contact printing parts housed and the table surface established for enlarging use.

Fig. 5 is a transverse section taken as on the line V—V of Fig. 3 showing the detail masking strip clamp.

Fig. 6 is a sectional elevation taken as on the line VI—VI of Fig. 1.

Fig. 7 is an enlarged fragmentary detail of the upper left hand corner of the table as shown in Fig. 2 with the gaging slide cut away to show the clamping member thereof.

Fig. 8 is a fragmentary sectional view taken on the line VIII—VIII of Fig. 7; and

Fig. 9 a further fragmentary view taken on the line IX—IX of Fig. 7, and Fig. 10 diagrammatically shows the wiring.

Fig. 11 is a plan view of one of the spacing blocks and division members used in the paper cabinet.

Referring now to the drawings in which the various parts are indicated by numerals:

The easel comprises a substantially rectangular flat top table 10 on which sensitized paper is laid face up to receive a photographic image projected thereon by an enlarger, which is not here shown. To hold the paper down on the base and form a blank or white border around its edges, I use a masking frame comprising an L shaped member having legs 11 and 12 and two slides 13, 14 adjustably mounted respectively on the legs 11 and 12. The slide 14 has upwardly turned edge portions 14—A which form a stop or guide for paper being trimmed by a knife, later herein described. The stop is in a plurality of sections to maintain flexibility of the slide.

The legs 11 and 12 are preferably integrally joined together and are essentially channels having their side portions turned downward. In cross section these channels, as best shown in Fig. 5, have a substantially flat web 11—A and oppositely disposed sides, portions of which, 11—B, 11—C, converge for about one-third the side depth and thence remaining portions 11—D, 11—E diverge, it being noted that the side portion 11—E is shorter than the opposite side in order that it may clear the base and permit the adjacent ends of the slides to underlie. One of the L legs, as the leg 12, is hingedly attached attached along one edge of the table 10 as by hinges 15, Figs. 3 and 4, so that the masking frame as a whole may be turned upward at an angle, as shown in dash lines in Fig. 4, to clear the table surface. When so turned a spring latch 16 engages a lug 17 on the frame member and detachably retains the frame in such position.

The slides 13 and 14 respectively have heads 20, 21 which fit over the legs 11 and 12, each head, as the head 20, Fig. 5, having a flat portion lying against the top 11—A of the leg and inwardly converging side portions 20—B, 20—C slidably embracing the converging portions 11—B and 11—C of the sides of the leg. Preferably the heads 20 and 21 are longer than the width of the slides which they carry to give greater rigidity thereto. Each of the heads, as the head 20, has an upwardly projecting post 22 rigidly secured

thereto on which a button 23 is mounted. Each of the buttons 23 is hollowed out to form an annular chamber 24 in which is disposed a compression chamber 25. The spring surrounds the post 22 and rests against the bottom of the chamber 24, being held in compression as by a nut 26. Projecting from the bottom of the button 23 are lugs 27 which are adapted to extend through complementary openings in the head and be forced into gripping engagement with the top 11—A of the leg by the pressure of the spring and resist shifting of the head. The head, however, may be released by manually raising the button, and shifting of the slide be accomplished.

The diverging surfaces, as 11—E of the legs, are graduated, preferably in inches and fractions thereof, to provide scales through which desired positioning of the slides may be accomplished.

The blade portions of the slides 13 and 14 are rigidly secured to heads 29 and 21 respectively and may extend, as shown in Fig. 5, so that they underlie the shortened leg portions 11—E.

Underlying the legs 11 and 12 of the L shaped masking member is a paper guide having a pair of integral arms 30, 31 at right angles, each of which arms has a vertically extending front edge 32, 33 respectively which form stops for positioning the paper. Integrally secured to the underside of the guide are diagonally disposed fins 34, 35 and 36. These fins are parallel and are disposed and adapted to slide in complementary grooves 37, 38 and 39 respectively, the fins and the slots being so positioned that the stops 32 and 33 will be held in alinement with the legs 11 and 12 respectively of the masking member and when the fins are shifted in the slots will maintain such parallelism. Preferably the fin 34 (see Fig. 7) is slightly crimped in order that it will frictionally engage the side of the slot 37 and hold the paper stop in adjusted position. The slots 37, 38 and 39 are preferably disposed at an angle of forty-five degrees to the edges of the table so that the amount of movement toward or away from the sides of the table will be identical with the amount of movement toward or away from the end of the table. Preferably also the surface of the table is made slightly lower beneath the guide in order that the bottom of the guide may lie slightly below the surface of the table and insure contact of the edges of the paper lying on the table with the stops.

Disposed at one end of the table is a cutting edge 40, with which a shearing cutter or blade 41 cooperates, to trim the edges of the prints or paper. The blade 41 is provided with an integral hub 42 which has a projecting pin 43 journalled in a bracket 44 mounted on the table. The pin 43 projects beyond the bracket 44 and is provided with a head 45 which may be a nut screwed on the end portion of the pin. 46 is an interposed compression spring holding the knife blade in shearing engagement with the plate 40. Obviously the plate 40 is definitely at right angles to the stop 33 in order that the paper may be disposed against this stop and the cut edge be truly squared up. If desired a fixed stop 47, usually of very restricted length, may be used in connection with the movable stop 33. In such event the adjustable stop 33 must be moved forward into definite alinement with the fixed stop 47, this being provided for by the length of the slots 37, 38 and 39, and also by end engagement of the stop 33 with the fixed stop 47.

Preferably the top of the table adjoining the cutting edge 40 is ruled off in parallel lines crossing in groups at right angles and marked to indicate in inches and fractions thereof their distances from the cutting edge and from the stop 47 and stop 33, and provide convenient scales for paper or prints being trimmed. The guide 14 may be positioned to aline the stop 14—A as by reference to these marks to assist in equally sizing a number of prints.

Underlying the table is a cabinet having side and end walls 48, 49 respectively and a bottom 50. One corner portion of this cabinet is partitioned off by walls 51, 52 to form compartments 53, 54 and 55, the wall 51 extending clear across the cabinet. The table is cut away over the compartment 55 and a shutter used to replace the cut away portion, the shutter when closed being adapted to complete the surface of the table. This shutter comprises a frame having sides 56, 57 and ends 58, 59 which surround and mount a center portion 60, preferably of ground glass. The upper surface of the frame and the glass are level and when in place coincide with and complete the surface of the table. The inner edges of the sides and ends mask a full size print thereabove from light from below and for smaller prints the side 56 and end 58 may likewise serve. Adjacent the outer edges of the side 57 and the end 59 are grooves 61, 62 which may be formed between the side and end respectively and added strips 63, 64, or may be grooves, such as formed by saw slots. 65, 66 are masking strips of thin material which have downwardly turned end portions 67, 68 respectively adapted to engage and slide in the grooves 61, 62 and be frictionally held therein. The strips 65 and 66 are so thin they do not interfere with the table surface, this particularly since the slide 65 may ordinarily be shifted entirely out from under any enlargement print being made.

At the outer end of the shutter is a clamp member 69 which is loosely attached by pins or screws 70 to provide a rocking movement about its longitudinal axis. Underlying the outer side of the member 69 are springs 71 which are let into suitable pockets disposed adjacent the outer edge of the end member 59, these springs exerting a rocking motion on the inner edge of the member 69 adapted to hold the negative in contact printing and at the same time mask off that edge of the paper.

Cooperating, particularly with the glass portion 60 of the slide, is a contacting head comprising two sections 75, 76 connected together by a hinge 77, each section comprising a backing member and an underlying soft pad. The section 76 is connected to the table top by flat straps 78 of thin flexible material, preferably metal, which straps are secured by hinges 79 to the table top and are adapted not only to bring the section 76 into substantial parallelism with the surface of the glass 60 when turned thereagainst, but by reason of their flexibility to provide for differences of thicknesses, particularly of interposed negatives such as glass as contrasted with films.

Rigidly connected to the section 75 as by a hinge 80 is an arcuate pressure plate 81 spanning the hinge 77 and having its free end slidably contacting the top of the section 76. 82 is a bar disposed and secured along the center of the arch of the member 81, and 83 a handle secured to this bar. 84 is a centrally disposed guide bar secured at its ends to the section 76 and lying parallel to the upper surface thereof, this

bar passing through an opening in the arcuate member 81 and serving not only to slidably guide the free end of the member, but also to be engaged by the free end of this bar and assist in raising the hinged-together sections 75 and 76. Overlying the arcuate pressure plate 81 is a switch actuator, which comprises a pair of rods 85 which are preferably formed of a single piece of heavy wire bent against itself at its mid point, these rods being spaced apart and secured in the bar 82. At their inner ends these bars are further separated and are adapted to slide along the upper surface of the section 76. Adjacent their outer ends they are first bent upward, to clear the section 75 when retracted about the hinge 77 as shown in dotted lines in Fig. 3, and thence bent downwardly to provide means for closing a contact switch 86 the contacting pressure being applied through a slidably disposed plunger 87.

Disposed in the compartment 55 are a pair of bulbs 90 which are adapted to furnish ample light for contact printing. These bulbs are furnished with current from a suitable source by circuit 91, 92 which is interrupted by the switch 86 so that on closing this switch the circuit is completed and proper light furnished for contact printing. Additionally within the compartment there may be a non-actinic bulb 93, usually of red glass, which is directly wired in the circuit in advance of the switch and burns at all times when current is on. A suitable switch 94 is preferably provided for cutting the current on and off.

The compartment 53 is provided with a light proof door 95, which forms with the side walls, bottom and top a light-proof receptacle for photographic print paper. The compartment is divided horizontally by shelves 96 which are progressively slightly shorter from bottom to top, the door 95 being similarly inclined to allow readier access to these stepped shelves. The various shelf compartments are divided into sizes conforming to desired and usual sizes of paper for making varied sizes of prints and enlargements, this division preferably being accomplished by removable partitions, each of which includes a block 97 of shelf compartment height and a strip of thin metal 98 of equal width secured to the block and extended forwardly therefrom, the width of the block conforming to the width of the paper to be disposed in the compartment and the projecting length of the side strip conforming to the length of the paper. Blocks may extend entirely to the back of the compartment or may be less than such depth, being adjusted in such case rearwardly from the front of the shelf. The compartments may be suitably numbered or designated along the side walls or otherwise, though such designation is not here shown.

The compartment 54 is provided with a door opening through the end 49 and is provided with a pull button 99, but there being no particular construction detail involved, the door is not shown. The compartment 54 may be used for the storage of negatives.

In using the device, the compartment 53 is usually stocked with sensitized photographic paper of the more common sizes used for contact printing, and for enlargements.

For contact printing the switch 94 is turned on establishing current to the red bulb 93 and switch 86. The shutter carrying the ground glass 60 is pulled out and the contacting head comprising the sections 75, 76, is raised above the surface and turned backward about the hinges 79 into upright position, as shown in dotted lines in Fig. 4, being adapted to remain in such position in and of itself. The shutter is then replaced, the glass surface 60 providing a table for the contact printing. A negative is then placed on the table, one edge of the negative being engaged under the clamping member 69, and is positioned as desired by the glow from the red light underlying the glass, and so that one end and one edge are properly masked by the end 58 and side 56. The masking strips 65, 66 are then shifted to properly mask the remaining edges. A sheet of sensitized paper of proper size is selected, placed in contact with the negative and held by the fingers. The contacting head is then swung downward about the hinges 79 to bring the section 76 into engagement with the paper and hold it in position and against the negative, after which the section 75 of the head is swung downward about the hinge 77 to complete the contact of the paper with the negative and bring the switch actuator 85 into contact with the plunger 87. Additional pressure is then exerted on the handle 83, through the arcuate pressure plate 81 forcing the head 75, 76 into closer contact with the paper and causing the switch actuator to close the contact switch 86 and turn on the printing light 90.

Preferably the end of the compartment 55 immediately underlying the shutter 60 is spaced away from the shutter so that turning on the light 90 may be more readily observed. Pressure and contact are maintained for the length of time necessary to accomplish the printing, after which the contacting head is raised again to upright position and the print is removed.

If additional prints are to be made the operation is repeated. After completing contact printing the negatives may be placed in the storage compartment 53 should it be so desired. After contact printing has been completed the shutter is again withdrawn and the contacting head folded downward into the light compartment 55 and the shutter replaced. When this is done the shutter is slid back into place completing the surface of the table for enlargement purposes, except that there are small gaps where the flat straps 78 of the contacting head hinges extend diagonally downward. V shaped blocks 100 are preferably provided to complete the surface at this point.

The masking strips 65 and 66 are then usually removed and for storage may be placed in the negative compartment 53. The masking frame comprising the legs 11 and 12 of the L shaped member and the slides 13, 14 are then raised until the spring latch 16 engages the lug 17 to hold the frame in upright position. The paper guide is then shifted to register the marking on the table underlying it indicating the width of masking margin desired, this marking being directly indicated on the table. A sheet of sensitized paper of proper size for the desired enlargement is then placed face upward on the table and shifted sidewise and endwise against the stops 32, 33, and the masking frame turned downward to engage one side edge and one end edge and cover such portion of each thereof as it is desired to mask off. The masking slides 13 and 14 are then moved inward to cover same amounts of the opposite side and edge of the paper, such measurements being directly readable from the scales on the edges of the legs 11 and 12, or if the print

is to be substantially less in size the slides may be adjusted by direct reading on the scales to the size desired. After placing the paper the enlarging head (not shown) is properly focused and the picture projected on the paper. After completing the print the masking frame is again turned upward into supporting engagement with the spring latch 16 and the print removed. Should it be desired to trim the paper either before or after printing or after the prints have been developed, washed and dried, the paper guide is shifted forward until the stop 33 of the arm 31 is in alinement with the fixed stop 47 and the print paper or print laid on the table and moved into desired position overhanging the plate 40, after which the blade 41 may be depressed to trim the edge. After one edge is trimmed the print may be turned to bring the trimmed edge against the stop and the operation repeated. Should the print inadvertently be slightly twisted on the paper, the first edge trimmed may be trimmed in parallelism or desired alinement with the edge of the picture and subsequent squaring up be accomplished, using that edge as a basis.

I claim:

1. A printing and enlarging structure including a base, means separating off chambers in said base, and a table member overlying said base and chambers therein, one rectangular portion of said member being cut away adjacent a corner of said table to form an opening exposing an underlying one of said chambers, a shutter adapted to form a closure for said opening and complete the surface of said table thereover, said shutter having a light transmitting panel and being displaceable to uncover said chamber, lighting means in said chamber spaced below said shutter, a head hingedly secured to said table adjacent said opening, said head being housable in said chamber between said lights and said shutter, being shiftable about said hinges into said chamber and out thereof when said shutter is displaced and being adapted to cooperate with said panel to contact negatives and sensitized paper thereagainst after shifting from said chamber and replacement of said shutter.

2. A device in accordance with claim 1 in which said head carries a part adapted to energize said lighting means concurrently with its cooperative paper and negative contacting action.

3. A printing and enlarging structure including a base, means separating off chambers in said base, and a table member overlying said base and chambers therein, one rectangular portion of said member being cut away adjacent a corner of said table to form an opening exposing an underlying one of said chambers, a shutter adapted to form a closure for said opening and complete the surface of said table thereover, said shutter having a light transmitting panel and being displaceable to uncover said chamber, a light bulb in said chamber spaced below said shutter, a circuit including a switch biased open leading from a source of electric energy to said bulb, a head hingedly secured to said table adjacent said opening, said head being housable in said chamber between said bulb and said shutter, being shiftable about said hinges into said chamber and out thereof when said shutter is displaced and being adapted to cooperate with said panel to contact negatives and sensitized paper thereagainst after shifting from said chamber and replacement of said shutter, said head having a projecting member adapted to engage said switch and close same on movement of said head into cooperative engagement with said panel.

4. A structure in accordance with claim 3 which includes two actinic and one non-actinic bulb, said non-actinic bulb being in said circuit in advance of said switch.

5. A printing and enlarging structure including a base, means separating off chambers in said base, and a table member overlying said base and chambers therein, one rectangular portion of said member being cut away adjacent a corner of said table to form an opening exposing an underlying one of said chambers, a shutter adapted to form a closure for said opening and complete the surface of said table thereover, said shutter including an opaque frame, a light transmitting panel carried by said frame, and a pair of opaque slides, adjustable respectively toward and away from a side and an end of said frame and adapted to cooperate with said side and end to form a masking frame; said shutter being displaceable to uncover said chamber, lighting means in said chamber spaced below said shutter, a head hingedly secured to said table adjacent said opening, said head being housable in said chamber between said lights and said shutter, being shiftable about said hinges into said chamber and out thereof when said shutter is displaced and being adapted to cooperate with said panel, and said masking frame to contact negatives and sensitized paper thereagainst after shifting from said chamber and replacement of said shutter.

6. A printing and enlarging device including a base, having a chamber therein, a printing table having an opening therein substantially co-extensive with said chamber overlying said base and chamber, said table including a shutter shiftable to expose said opening, said shutter including a light transmitting panel; lighting means in said chamber spaced below said shutter, said means including a lighting circuit and a switch therefor biased open; a head adapted to cooperate with said panel to contact negatives and sensitized paper thereagainst, said head comprising a pair of abutting pads, hinge means connecting the abutting edges of said pads together, hinge means connecting the opposite edge of one of said pads to said table adjacent said opening, an arcuate pressure member having one edge hingedly secured to one of said pads and the opposite edge slidably contacting the other thereof, means slidably confining such opposite edge to adjacency with said pad, handle means secured to said pressure member, and a switch closing member carried by said handle member and movable into switch contact and actuation by pressure applying movement of said handle, said head being housable in said chamber between said lighting means and said shutter, and being shiftable about said hinges into or out of said chamber when said shutter is displaced.

7. A device in accordance with claim 6 in which said shutter is slidably shiftable.

8. A printing and enlarging device, including an enlarging table having an opening therein, a light transmitting panel completing the surface of said table over said opening, said panel being shiftable to uncover said opening; a head, adapted, when said panel is in covering position, to contact negatives and sensitized paper therewith, means hingedly connecting said head to said

table for movement of said head through said opening, when uncovered, into inoperative position below, or contacting position above, said panel, and means carried by said device below said opening for effecting printing illumination of said panel.

9. A printing and enlarging device, including an enlarging table having an opening therein, and walls establishing a chamber beneath said opening, a light transmitting panel completing the surface of said table and said opening, said panel being shiftable to uncover said opening; a head, adapted, when said panel is in covering position, to contact negatives and sensitized paper therewith, means hingedly connecting said head to said table for movement of said head through said opening, when uncovered, into inoperative position below, or contacting position above, said panel, and means within said chamber for effecting printing illumination of said panel.

10. A printing and enlarging device, including an enlarging table having an opening therein, a light transmitting panel completing the surface of said table over said opening, said panel being shiftable to uncover said opening, a head, adapted, when said panel is in covering position, to contact negatives and sensitized paper therewith, means hingedly connecting said head to said table for movement of said head through said opening, when uncovered, into inoperative position below, or cooperative position above, said panel, means carried by said device below said opening adapted on energization to effect printing illumination of said panel, and means carried by said head for effecting energization of said illuminating means during contacting action of said head.

11. A printing and enlarging device, including an enlarging table having an opening therein, a shutter, including a light transmitting panel, completing the surface of said table over said opening, said shutter being shiftable to uncover said opening; a head, adapted, when said shutter is in covering position, to contact negatives and sensitized paper with said panel, means hingedly connecting said head to said table for movement of said head through said opening, when uncovered, into inoperative position below, or co-operative position above, said panel, and means carried by said device for effecting printing illumination of said panel.

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