

Aug. 19, 1941.

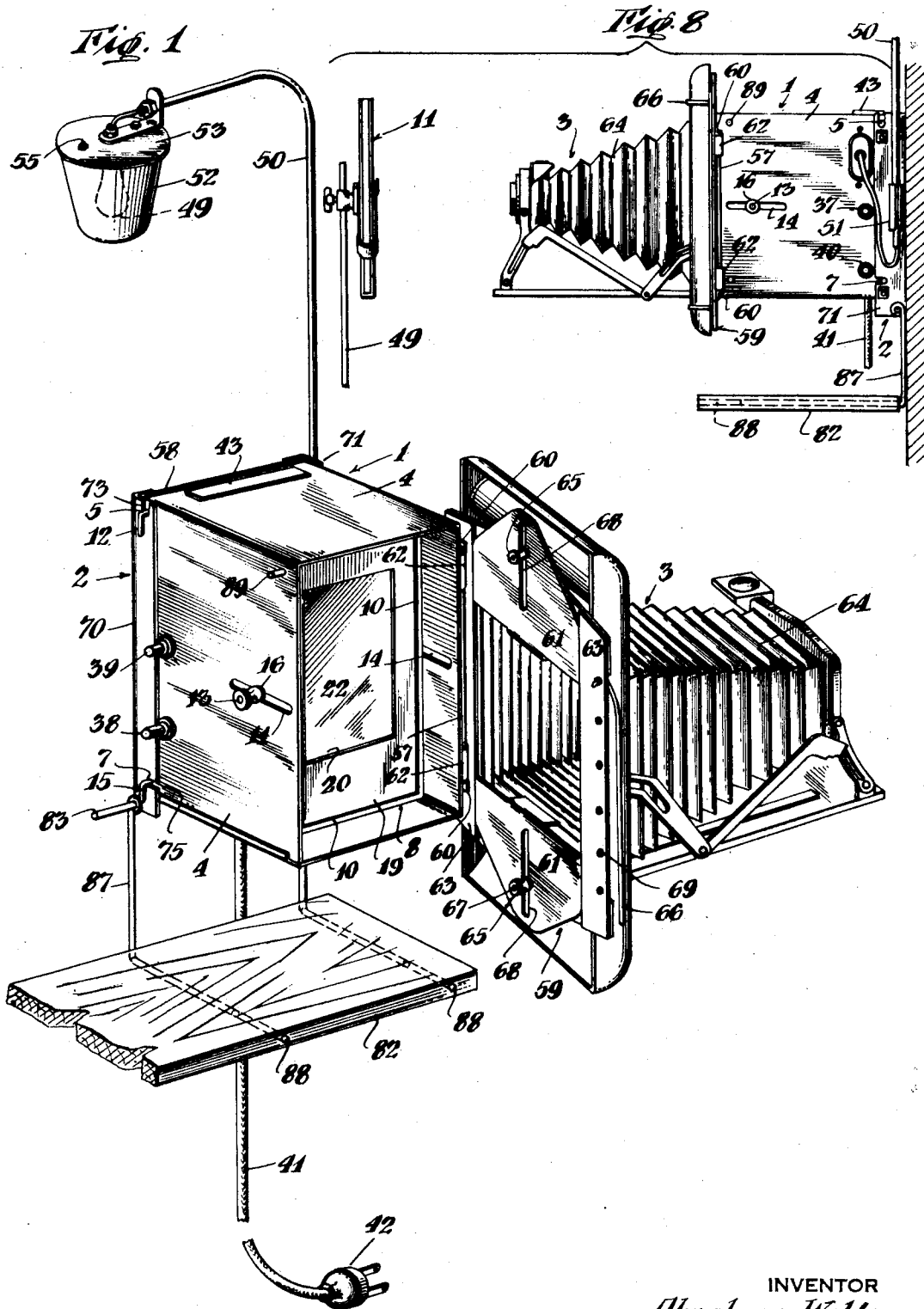
A. WOLFSON

2,253,200

PHOTOGRAPHIC ENLARGING AND PRINTING MECHANISM

Filed Feb. 4, 1939

3 Sheets-Sheet 1



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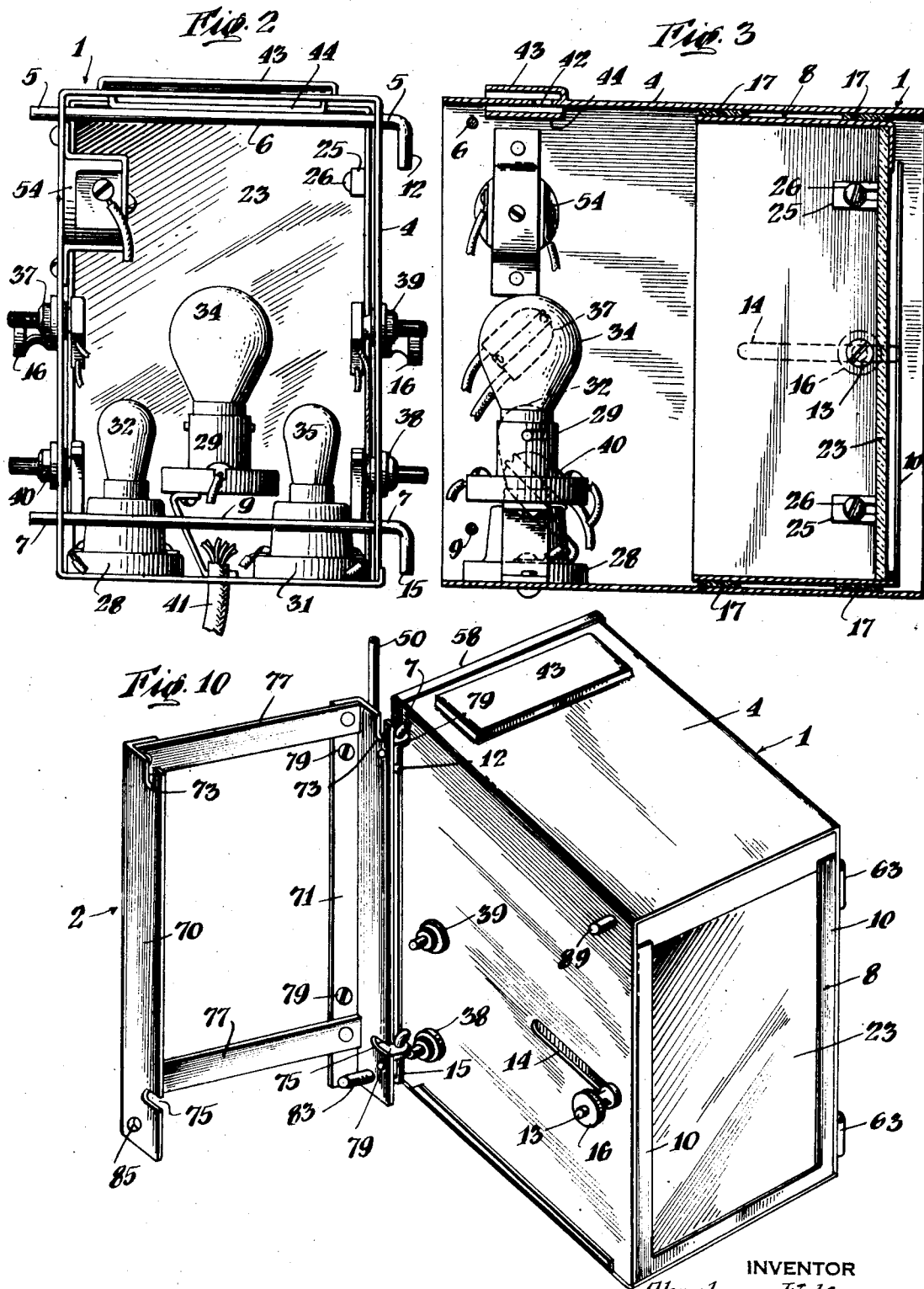
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PHOTOGRAPHIC ENLARGING AND PRINTING MECHANISM

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3 Sheets-Sheet 2



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PHOTOGRAPHIC ENLARGING AND PRINTING MECHANISM

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3 Sheets-Sheet 3

Fig. 9

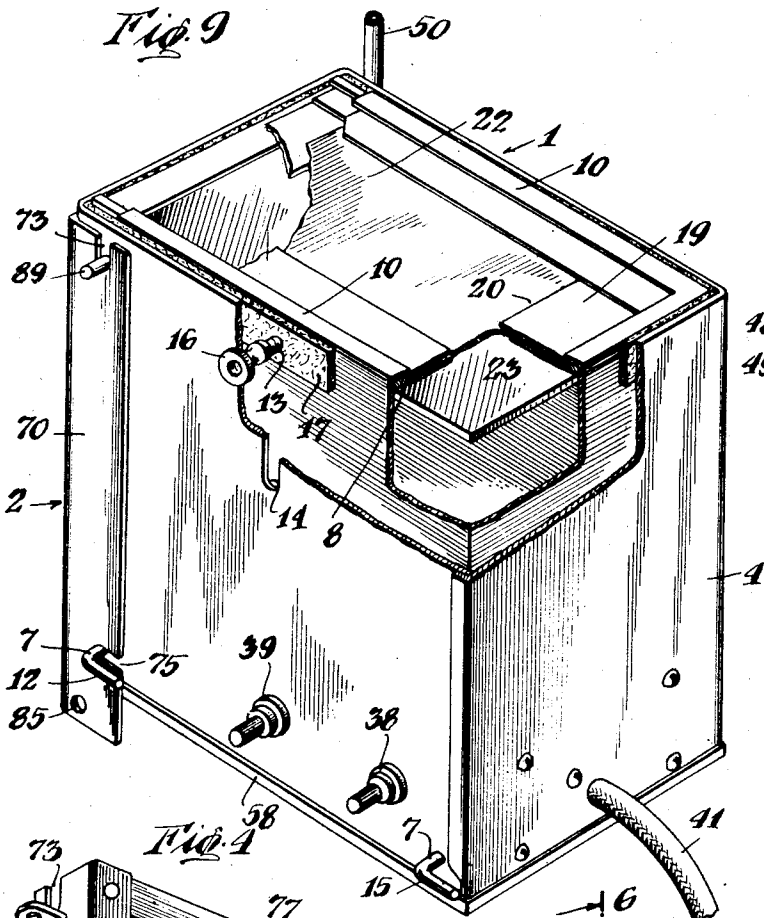


Fig. 7

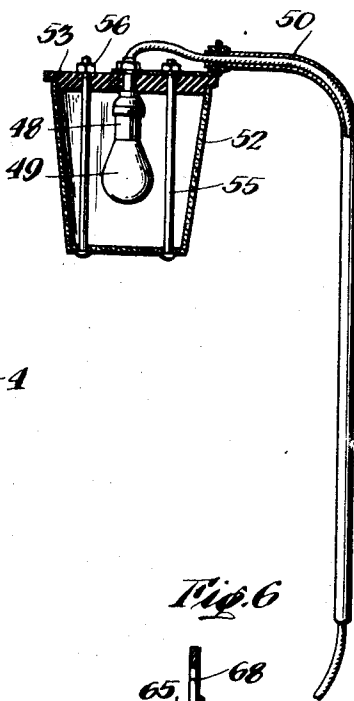


Fig. 4

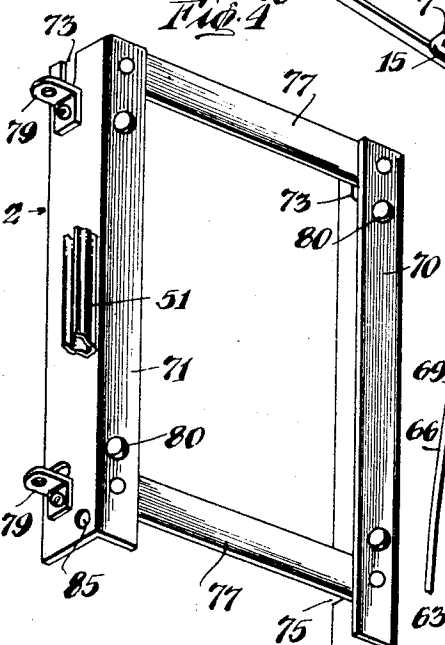


Fig. 5

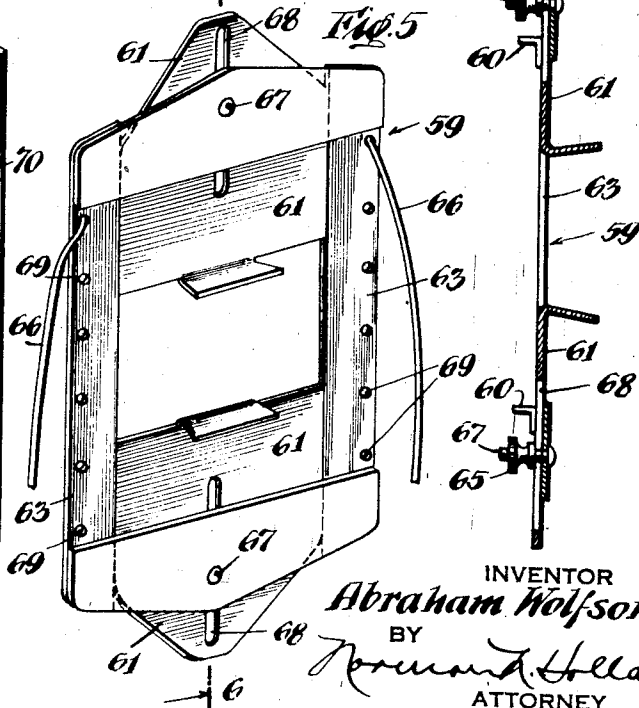
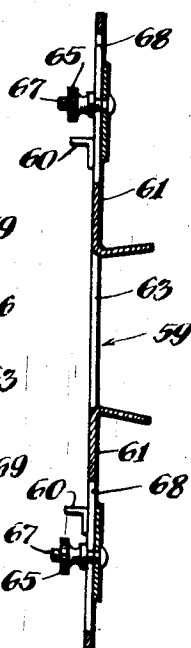


Fig. 6



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PHOTOGRAPHIC ENLARGING AND PRINT-
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Application February 4, 1939, Serial No. 254,523

11 Claims. (Cl. 88—24)

The present invention relates generally to the art or process of producing an image on a sensitized surface by the action of light. The invention is directed more particularly to a device or construction adapted to be utilized to make enlargements of a photographic negative, to print pictures from a negative, and to facilitate developing of negatives.

The popularity of amateur photography as a pastime and a hobby has increased tremendously in recent years and it is still growing. Persons of all classes and all ages have been attracted to it and the total volume of sales of all kinds of photographic equipment and supplies for taking pictures has greatly increased. In addition to the interest in taking pictures, there has also grown up, practically parallel therewith, an interest in doing the actual enlarging, printing and developing work. This is true even though the ultimate cost of the positive prints to the amateur photographer is often considerably in excess of having the work done by a competent commercial photographer. Besides the increased cost to the amateur, his final prints are frequently not as good as those produced by the average commercial photographer. The reason for the increased cost and inferior prints, is that the average amateur does not possess the equipment and facilities nor does he turn out the same volume of work as the commercial photographer.

The average amateur is obliged either to set aside an entire room for a darkroom and furnish it with trays, developing and printing baths, running water, various colored lights, and other necessary bulky equipment, or to do his actual darkroom work in a light-tight closet. Both methods are objectionable. The first, chiefly because of the numerous expensive items of equipment required, and the second, because of the cramped space, lack of running water and other facilities, and the need of emptying the closet of its contents every time it is so used. If the latter is not done, there is present the danger of splashing the various chemical solutions onto the clothes or other contents of the closet and ruining them.

The present invention aims to eliminate or minimize the above difficulties by providing a compact, convenient and inexpensive means adapted to be utilized for making enlargements of a negative, and for making prints from a negative. The present device aims to cut down the

cost to the amateur of enlarging or making his own pictures and to enable him to obtain better results than formerly. The invention also aims to provide improved means adapted to furnish illumination for use when developing negatives.

An object of the present invention is to provide an improved means for making enlargements.

Another object of the present invention is to provide an improved means for exposing a negative and sensitized surface to a light source.

Another object of the invention is to enable a user of the device to make better pictures at less expense.

Another object of the invention is to provide improved means for making enlargements and contact prints which is compact and requires no special skill to operate.

A further object of the invention is to provide an improved lighting means for use in connection with the developing of photographic negatives.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein

Fig. 1 is a perspective view of a preferred embodiment of the invention used for making an enlargement;

Fig. 2 is a view from the rear of the device with the back removed;

Fig. 3 is a longitudinal sectional view of the device shown in Fig. 2;

Fig. 4 is a perspective view of the supporting bracket from the rear thereof;

Fig. 5 is a perspective view of the camera supporting door illustrated in Fig. 1 taken from the front;

Fig. 6 is a sectional view taken along the line 9—9 of Fig. 5;

Fig. 7 is a fragmentary sectional view of the external light shown at the top of Fig. 1;

Fig. 8 is a side elevational view of the invention set up in position ready for making an enlargement;

Fig. 9 is a perspective view of the device mounted in position for making a contact print; and

Fig. 10 is a perspective view of the device mounted in position for facilitating the developing of negatives.

Described generally, the present invention comprises a device adapted to be placed in different positions upon a supporting bracket, which is secured to a wall, to make enlargements and contact prints and to be used in developing negatives. The device illustrated herein comprises an outer casing having an adjustable negative supporting frame telescopically fitted therein. Different colored bulbs within the outer casing cast light rays through a light-diffusing member and a negative on the frame and facilitate performing the various operations. An apertured door provided at the front of the device supports and makes it possible to utilize an amateur's own camera and its lens in connection with making enlargements, any focusing being done by moving the camera lens or the adjustable telescoping frame back and forth. With the outer casing mounted on the supporting bracket so as to face upwardly the telescoping frame may be moved to the end of the casing and the device used to make contact prints. With the device hinged to the bracket in still another position it may be utilized to provide a safe developing light.

Referring again to the drawings, and more particularly to Figs. 1, 2 and 3 thereof, there is shown a preferred embodiment 1 of the invention assembled with a supporting means 2. In Fig. 1 the device is shown mounted in position for making an enlargement. The supporting bracket 2, which will be described in more detail later, may be secured to a wall or the like of any room, but a bathroom is preferred since it is best equipped to be utilized for enlarging, printing and developing purposes. This, because of the presence of running water, basin and tubs for washing prints, and the tile floor and walls which are not subject to discoloration by the various chemicals and solutions used in the processes involved. In addition, a bathroom is more easily converted into a dark room since there is usually only one window from which the light must be blocked out.

In enlarging position an open ended outer casing or boxlike structure 4, which carries a focus adjusting frame, contact printing surface and various printing and developing lights, is secured to the supporting bracket 2 by means of pins or projections 5 and 7 which extend outwardly beyond the sides of the outer casing 4 adjacent the upper and lower parts thereof. The focusing means comprises an open ended frame 8 having negative retaining flanges or slots 10 adjacent its forward end and telescopically fitted within the outer casing 4. This frame 8 is adapted to be moved forwardly and backwardly with respect to the outer casing 4 and cooperates with the camera 3 and its lens to vary the size and sharpness of an image cast upon a screen 11 (Fig. 8) by a negative held within the flanges 10. Adjustment and clamping of the frame 8 in a fixed position is achieved by threaded bolts or pins 13 which extend outwardly from the sides of the frame 8 through longitudinal slots 14 in the outer casing and have nuts or thumb screws 16 threaded to their outer ends (Fig. 1). Strips of felt 17 adhesively secured to the frame 8 adjacent its inner and outer ends (Figs. 2 and 3) assist in guiding the frame, make for smoother

operation and prevent passage of light between the inner frame 8 and outer casing 4. A frame or mask 19 having a suitable size opening 20 therein is preferably utilized to receive and hold a negative 22 within the flanges or slots 10 at the front of the adjustable frame 8. In this way a series of masks all adapted to fit within the flanges 10 and having openings of various sizes may be used for holding different size negatives.

To provide a backing for a negative within the mask 19, a sheet of glass 23 or the like may be held in position at the rear of and adjacent to the negative supporting means which is located adjacent the end of the frame 8. Preferably this glass is of the variety known as opal glass, since such glass tends to produce an even diffusion of light which passes therethrough from an illuminating means about to be described. The glass is held in position by stops 25 (Fig. 3) secured at the sides of the adjustable frame 8 by screws 26.

To cause an image of a negative 22 held by the frame 8 to appear on a screen, a means of illumination is provided at the opposite side of the negative and the glass sheet 23. In the present invention this is taken care of by electric bulbs located within and adjacent to the rear of the outer casing 4. Sockets 28, 29 and 31 adapted to receive a green bulb 32, a white bulb 34, and a red bulb 35, respectively are secured to the bottom of the outer casing 4 with the necessary wires passing to suitable controlling switches 37, 38 and 40, respectively. Current is conveyed to the various lights from a source of power supply by a cable 41 and plug 42. The various wires of the lights, switches and cable are shown broken off instead of with a detailed circuit in order to avoid confusion and since any known circuits and connections may be used.

The red bulb 35 may be turned on and used to assist in positioning a negative 23 correctly within a mask 19 and the retaining flanges 10 and also in connection with the developing of negatives, as will be explained further hereinafter. This red bulb does not give off light rays which affect the sensitized paper or film and may be of comparatively small size, for example, such as a three watt size. The green bulb 32 is used for the developing of negatives as will be later described. Actual enlarging is done by turning on the white bulb which may be about a fifty watt size. The light rays from this white bulb pass through the negative 23 and cause a representation thereof to appear on the sensitized surface held by a screen 46 (Fig. 8).

Ventilating apertures 42 are provided at the top of the outer casing 4 to assist in removing heat generated by the illuminating bulbs. Cover plates 43 and 44 spaced from and located above and below the apertures 42 prevent the escape of any light rays which might strike and injuriously affect a sensitized developing paper or otherwise interfere with the operation of the device.

To furnish illumination externally of the device for the photographer to see by, there is provided (Figs. 1 and 7) a socket 48 containing a bulb 49 and maintained in position by an arm 50 adapted to be secured by a resilient clamp 51 (Fig. 4) to one side of the bracket 2 which supports the outer casing 4. A cup-shaped member 52, made from some suitably colored translucent material which is not easily breakable, preferably extends around the bulb 49 and is se-

cured to a cover member 53 by means of bolts 56 which pass through the parts and have nuts 56 threaded to their ends. The connecting wires for the external bulb 52 may lead to a suitable plug (not shown) which is adapted to be inserted into a receptacle 54 located within the outer casing 4. A switch 39 located at the side of the casing 4 may be operated to control the external light. The bulb 52 in the socket 48 thus furnishes sufficient illumination and gives off filtered light rays which will not affect a sensitized printing paper being used. Preferably, the external bulb 49 and the internal white bulb 34 are so connected that when the internal white bulb is turned on for an exposure the external bulb is automatically turned off. This is a very desirable feature as it enables the photographer to determine more exactly the sharpness of the image being cast upon a sensitized surface.

A removable light-tight back member 58 (Fig. 9) frictionally fitted over the rear end of the outer casing 4 provides access thereto and minimizes the possibility of injuring the internal mechanism.

For making enlargements of an image there is shown, attached to the front of the outer casing of Fig. 1 and in Figs. 5 and 6, a camera retaining means adapted to cooperate with the outer casing, negative frame and lights. An apertured door 59 pivotally secured to one side of the outer casing 4 by a pin 57 fitting through apertured flanges 60 on the door 59 and flanges 63 at the side and end of the outer casing 4 is provided with hook-shaped adjusting clamps 61, adapted to be moved along and guided by side members or tracks 63 (Figs. 1 and 9), for securing the camera 3 thereto. Utilizing the photographer's own camera 3 with its lens in the enlarger has many advantages. In most cases the same camera which was used by the amateur to take a picture will be used for enlargement purposes, thus the same lens will be utilized in both cases. Any defects present in the camera lens causing distortion of the image produced on a negative will be corrected when the image is cast upon a sensitized surface for enlargement. Defects in a negative will not be further magnified as would be true where a different lens were used. Enlargements are more accurate when made by means of the same lens which took the pictures. Also, reliable lenses are one of the most expensive items required in the photographic art and if a separate enlarging lens were purchased it would, in all probability, be a cheap one which would greatly magnify existing defects and produce new ones. With the present invention a single lens serves the purpose of two lenses.

The camera may be one with a fixed focus, frequently referred to as a "box" type or may be one with a collapsible bellows 64 as shown. In either event, the back of the camera is first removed and then the lens retaining portion clamped against the door 59 by means of the hook-shaped clamps 61 which extend over the projecting portions of a flange (not shown) on the back of the camera. The hook-shaped clamps 61 may be securely locked in position by nuts or thumb screws 65 carried on threaded members 67 which are fixed to the front of the door 59 and pass through adjusting slots 68 in the hook-shaped clamps. The pivoted door 59 facilitates assembly of a camera 62 to the device and the insertion and removal of different negatives without dismantling any parts of the

device. Lacing strings 66 and apertures 69 are provided at each side of the door 59 to be utilized in tying or lacing an odd-sized camera to the supporting door or to more effectively secure thereto a camera of suitable size.

Movement of the frame 8 to and fro along the inside of the printing box effects focusing of the enlarging means and varies the size of an image produced on a screen by a negative held within the flanges 10 at the front of the frame 8. The outer casing 4 supports and guides the frame 8. To assist in getting a correct focus for a particular enlargement, the screen 46 and its supporting stand 49 (Fig. 5) may be moved. When it is desired to print only a particular portion of an image, the screen 46 will be moved aside to let only the desired portion of the image fall upon a sensitized surface held by the screen.

The supporting bracket 2, hereinbefore referred to, for retaining the outer casing 4 and camera 3 in operative position preferably comprises a pair of spaced substantially upright L-shaped members 70 and 71, the outwardly extending leg of which is provided with upwardly extending recesses 73 at its upper end and outwardly extending recesses 75 adjacent its lower end. The upper recesses 73 are adapted to receive the horizontal outwardly projecting ends 5 of a retaining rod 6 which extends through the outer casing 4 at the upper part thereof (Fig. 2). When the upper rod 6 is placed in position in the upper recesses 73, a lower rod 9 and its horizontal outwardly projecting end portions 7 will be in line with the lower recesses 75 and will be guided therein due to the weight of the device, which is free to pivot about the upper rod 6 and its retaining recesses 73. Cross members 77, riveted, welded or otherwise secured to the L-shaped upright members, maintain them in correctly spaced relation and make a unitary construction of the bracket.

A pair of apertured angle pieces 79 located at the outer side of one of the side members and at the upper and lower parts thereof are adapted to receive and retain downwardly bent portions 12 and 15 at the free ends of the upper and lower retaining rods 6 and 9. The purpose of this construction will be later described in connection with the developing of negatives.

The supporting bracket 2 also carries the U-shaped resilient spring clip at one side thereof which grips the rod 50 that supports the external light means 48.

While any suitable means may be utilized to secure the bracket to a wall, it is preferably held in position by screws 79 which pass through apertures 80 in the inner legs of the upright members 70 and 71.

A shelf 82 attached to the bracket may be used to support various materials, trays and solutions used for developing and printing. The shelf supporting structure comprises a suitably bent rod 83, which extends through apertures 85 adjacent the extreme lower end of the upright bracket members 70 and 71, and carries a second rod 87 having an apertured portion which fits over a free end of the first rod 83. Outwardly projecting portions at the ends of each of the rods are adapted to fit into spaced apertures 88 in the shelf to hold the shelf in horizontal position. It will be noted that the shelf apertures are placed slightly off center so that the shelf may be mounted more toward one side of the device than the other in instances where a wall or some article is in the way.

In Fig. 9, the device is illustrated mounted in position for making what are known as contact prints. The process of making such prints consists essentially of holding a sensitized paper closely in contact with a photographic negative and allowing light to pass through the negative to affect the sensitized paper. To practice this process the door 59 and camera 62 are removed from the outer casing 4 and the casing 4 turned so that it faces upwardly. Then the projecting ends 5 of the upper rod 6 are inserted into the upper slots 73 of the bracket 2, and additional projections 89 located at opposite sides of the front of the outer casing 4 are inserted within the lower slots 75 in a manner similar to that described in connection with the making of enlargements. The frame 8 is then moved to the end of the outer casing so that its surface is flush with the ends of the outer casing 4. A flat upper surface is thus provided and negative retaining masks may be easily inserted and removed. The red light 35 within the outer casing 4 may then be turned on to assist in correctly positioning a negative and sensitized paper. After a piece of sensitized paper is laid over the negative and held in close contact therewith, the white light 34 within the casing 4 is turned on to expose the paper for any desired length of time.

In addition to making enlargements and contact prints, the device may be mounted and used to provide a safe means of illumination for the developing of various types of sensitive negatives. For this purpose, the casing 4 is mounted as shown in Fig. 10 so that it may be swung in a horizontal plane about the supporting hinge structures 79 to any desired position. That is, the device may be swung from a position substantially parallel to the supporting bracket 2 to a position at right angles thereto. Either the green or red bulbs may be turned on, depending upon whether the type of film being developed is sensitive to green or red light, and the device may be turned so as to direct the light only where it is needed. This directing of the light greatly minimizes the danger of excess illumination striking a negative during the developing process and injuriously affecting it.

It will be seen that the present invention provides an inexpensive and practical means adapted to facilitate enlarging, printing and developing operations. These three operations may all be performed with the aid of the same device. The device is compact and may be easily and rapidly mounted on its supporting bracket to perform its various functions. It may also be conveniently stored in a small space when not in use. In addition, no great skill is required either to assemble or to operate the device; the average amateur is capable of assembling it, making enlargements and prints and developing films.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A device adapted to be utilized for transferring an image from a negative to a sensitized surface comprising, in combination, an outer casing structure having a plurality of illuminating means therein adapted to selectively provide light rays of different colors and having a substantially longitudinally extending guiding slot at one

side thereof, means for selectively controlling said illuminating means, a movable negative supporting frame within said outer casing having flange portions on at least two sides thereof to assist in guiding said frame and having a guiding and locking projection extending through said guiding slot on the outer casing, and projections on said frame adjacent one end thereof forming a slot with an open side adapted to hold a negative so as to cause said light rays to pass there-through and adapted to be moved so as to project beyond the end to said outer casing to facilitate insertion and removal of negatives.

2. An image transferring device comprising, in combination, a supporting bracket adapted to be secured to a wall, a boxlike structure mounted on said bracket having an open end adapted to permit insertion and removal of a negative supporting frame and having means therein adjacent the opposite end thereof for illuminating said open end, an open ended adjustable negative supporting frame with relatively wide inwardly extending flanges at the edges thereof in said boxlike structure, said flanges having secured to their exterior surfaces a strip of felt or the like to minimize passage of light between said flanges and the outer box-like structure and to assist in guiding said frame during adjustment thereof, a translucent member carried by said frame adapted to form a backing for a negative, and negative retaining means on said frame adapted to support a negative in proximity to said translucent member.

3. A device of the class described comprising, in combination, a supporting bracket adapted to be secured to a wall, shelf retaining means secured to said bracket having a shelf adjustably mounted thereon, a framelike structure secured adjacent one end thereof to said supporting bracket above said shelf and adapted to support negative retaining means, negative retaining means supported by said framelike structure, and a light source within said framelike structure for illuminating a negative in said retaining means.

4. A device of the class described comprising, in combination, a casing structure having an open end and adapted to adjustably support a negative retaining frame, a frame for supporting a negative adjustably secured to said casing structure, means within said casing structure for illuminating a negative supported by said frame, and an apertured door with hook-shaped adjusting clamps adapted to extend within the lens containing part of a camera pivotally secured to said casing structure adjacent the open end thereof for holding the lens containing part of a camera in position for making an enlargement of a negative on said frame.

5. A device of the class described comprising, in combination, an outer substantially rectangular structure terminating in an open end having a width and a length substantially equal to the internal dimensions of said rectangular structure, an inner negative retaining frame, an open ended substantially rectangular frame fitting within and guided by the interior walls of said outer structure and adjustable with respect thereto having means adjacent one end thereof for retaining a negative, means within said outer structure for illuminating a negative supported by said inner frame, and an adjustable bracket pivotally secured to said outer structure adjacent the open end thereof for holding the lens portion of a camera in position for making an enlarge-

ment of a negative in said frame and adapted to be readily moved to one side of said outer structure to facilitate insertion and removal of negatives in said frame.

6. A supporting bracket of the class described comprising, in combination, a pair of spaced side members adapted to be secured in substantially upright position to a wall having means for detachably securing thereto a printing and enlarging device, and one of said side members having means for pivotally securing thereto a printing and enlarging device in position to be used as a developing light.

7. A supporting bracket of the class described, comprising, in combination, a pair of substantially L-shaped spaced side members adapted to be secured in upright position to a wall, cross bars connecting said side members to retain the spaced relation thereof, one leg of each of said substantially L-shaped members having means for detachably securing thereto a printing and enlarging device, and one leg of one of said side members having means for pivotally securing thereto a printing and enlarging device in position to be used as a developing light.

8. In a device of the class described, the combination of a supporting bracket comprising a pair of spaced side members adapted to be secured to a wall having means for detachably securing thereto a negative printing means, and a negative printing means secured to said bracket comprising an outer casing having an exposed normally upwardly disposed end, illuminating means in said casing, and adjustable negative supporting means adjacent the exposed normally upwardly disposed end of the outer casing adapted to extend at least slightly beyond said upwardly disposed end to facilitate insertion and removal of negatives.

9. In a device of the class described, the combination of a supporting bracket comprising a pair of spaced side members adapted to be secured to a wall having means for releasably securing thereto in different positions a negative enlarging and printing means, and a negative enlarging and printing means secured to said

bracket in one of said positions comprising an outer casing having a plurality of portions thereon adapted to hold said casing in one of said positions on the bracket, an illuminating bulb within said outer casing, an adjustable negative retaining frame within said outer casing adapted to facilitate positioning of a negative retained by said frame, and means on said outer casing for attaching thereto an enlarging lens.

10. A device adapted to be utilized in making contact prints and in making enlargements of a negative, comprising, in combination, an open ended casing having a plurality of illuminating means therein adjacent one end thereof, each adapted to give off light of different color, means carried by said device for selectively controlling said illuminating means and the light given off thereby, and an adjustably mounted frame-like structure within said casing having negative supporting means thereon, said frame being adapted to be moved to a position adjacent the end of said casing opposite to said illuminating means so as to project the negative supporting means into position to facilitate insertion and removal of negatives.

11. A device adapted to be mounted on a supporting bracket in one position for making contact prints and in another position for making enlargements of a negative, comprising, in combination, an open-ended casing having means thereon for retaining it in different positions on a supporting bracket and a plurality of illuminating means therein adjacent one end thereof, each adapted to give off light of different color, means carried by said device for selectively controlling said illuminating means and a frame-like structure mounted within said casing and adjustable longitudinally with respect thereto having negative supporting means thereon, said frame being adapted to be moved to a position adjacent the end of said casing opposite to said illuminating means so as to project the negative supporting means into position to facilitate insertion and removal of negatives.

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