

Dec. 19, 1944.

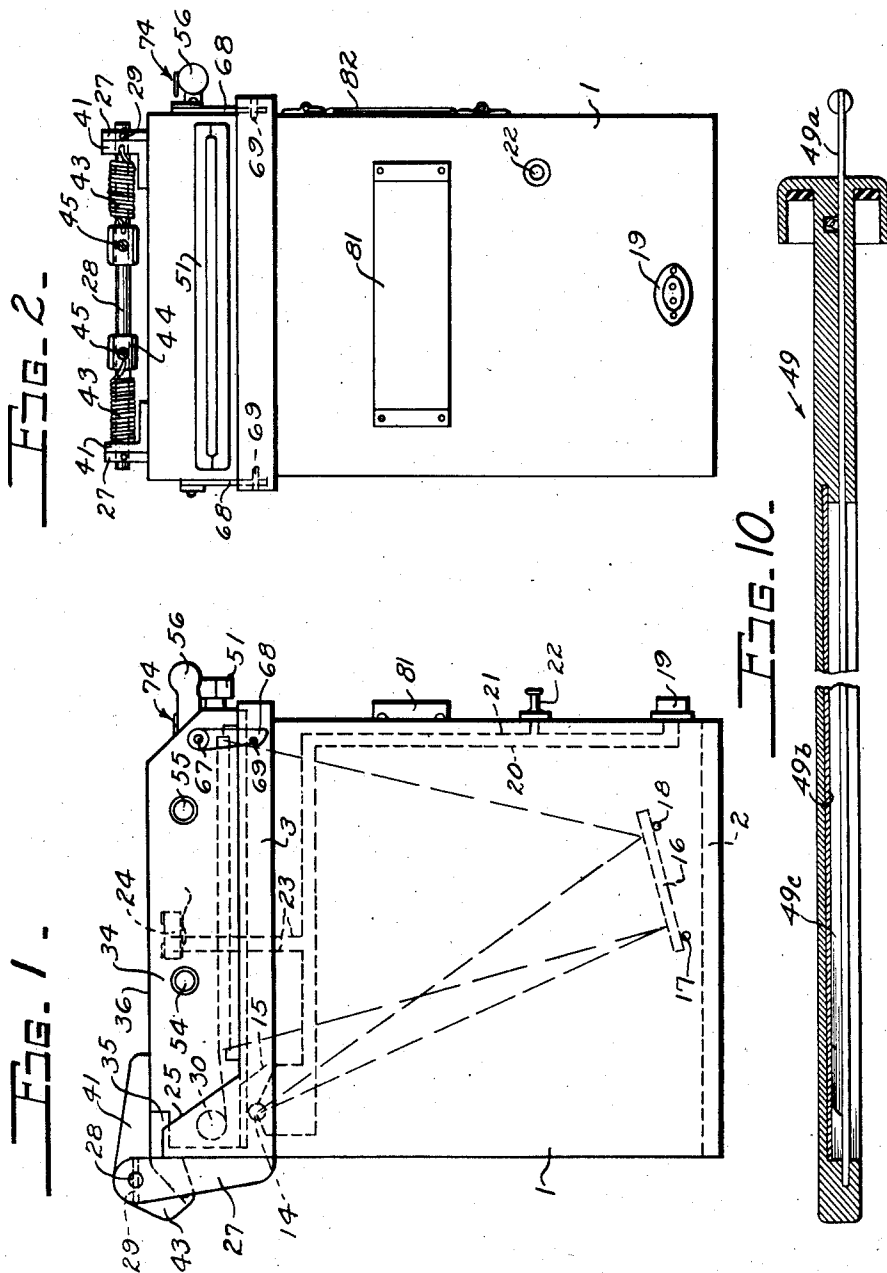
H. F. STIFFLER

2,365,225

DAYLIGHT PRINTER

Filed Sept. 10, 1943

3 Sheets-Sheet 1



INVENTOR
HAROLD F. STIFFLER
BY *Joseph E. Hayell and*
Clade Henry ATTORNEYS

Dec. 19, 1944.

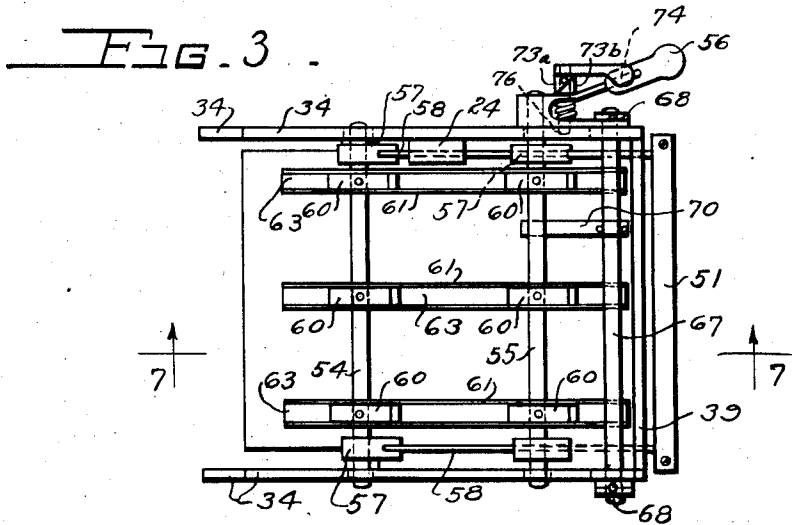
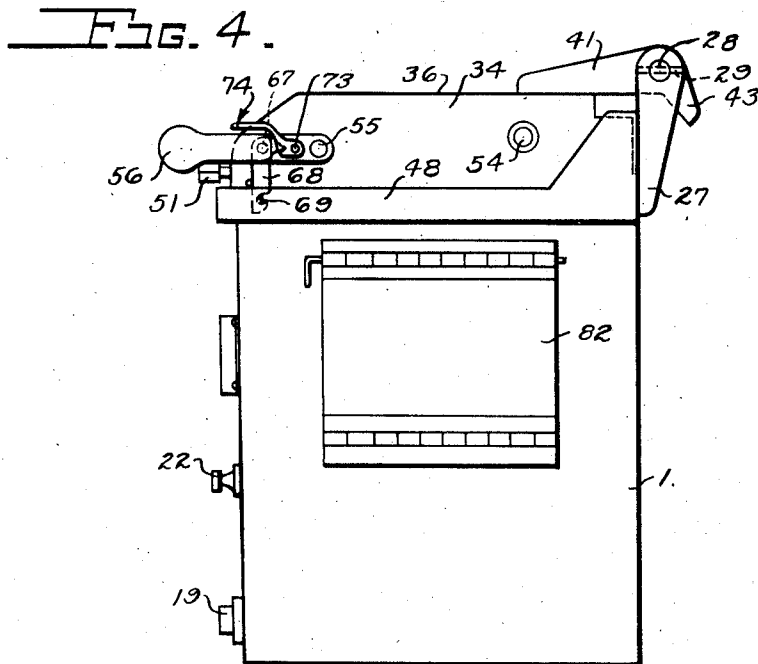
H. F. STIFFLER

2,365,225

DAYLIGHT PRINTER

Filed Sept. 10, 1943

3 Sheets-Sheet 2



INVENTOR
HAROLD F. STIFFLER
BY *Joseph C. Hayell*
Charles K. Smith ATTORNEYS

Dec. 19, 1944.

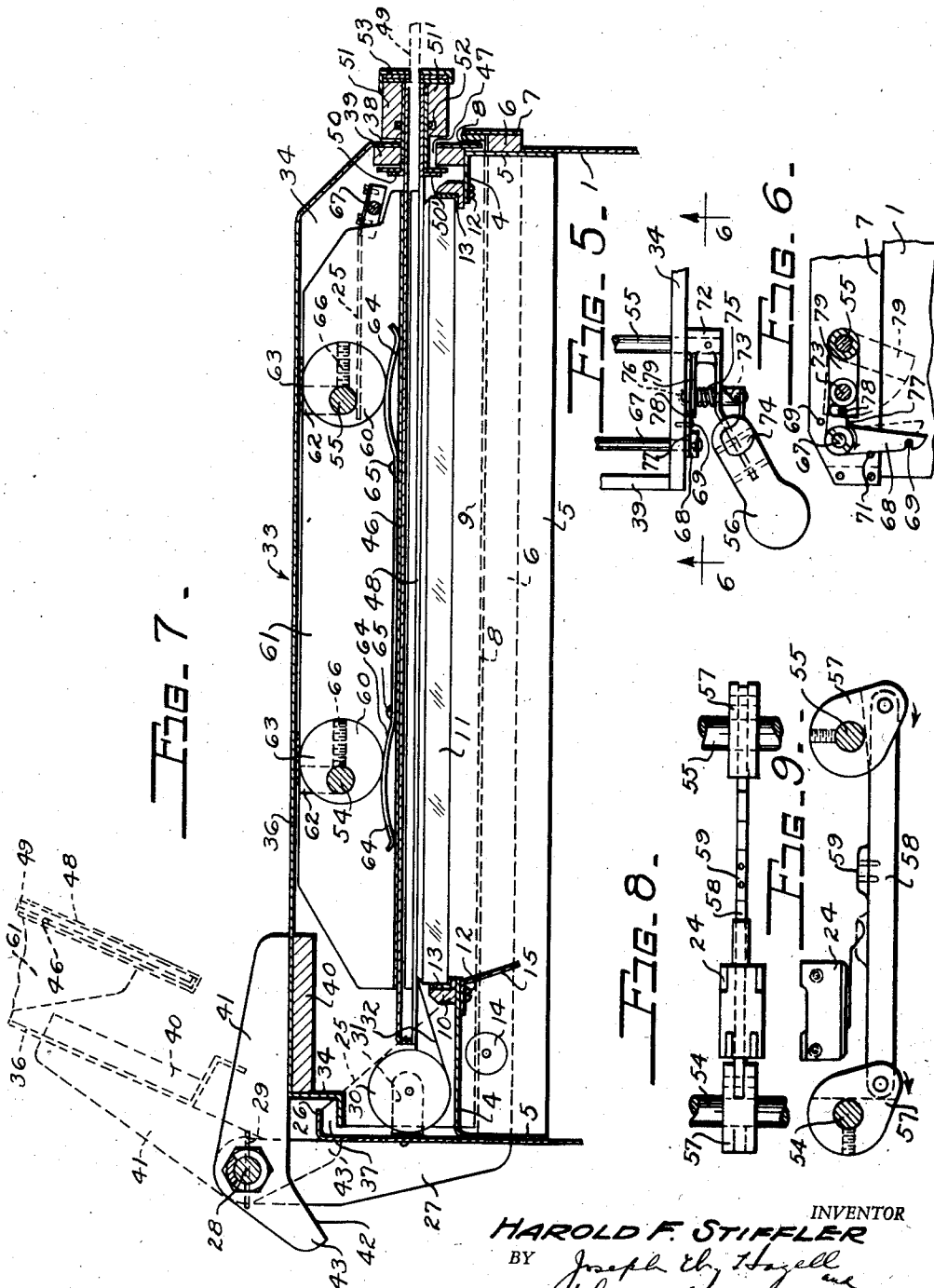
H. F. STIFFLER

2,365,225

DAYLIGHT PRINTER

Filed Sept. 10, 1943

3 Sheets-Sheet 3



HAROLD F. STIFFLER
INVENTOR
BY *Joseph E. Hayell*
Charles H. Smith
ATTORNEYS

UNITED STATES PATENT OFFICE

2,365,225

DAYLIGHT PRINTER

Harold F. Stiffler, Medway, Ohio

Application September 10, 1943, Serial No. 501,761

19 Claims. (Cl. 95—73)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The present invention relates to improvements in photographic printing apparatus, and more particularly, means for quickly and efficiently making prints from photographic negatives and similar transparencies in daylight without a dark room or other special light shields.

An object of the present invention is the provision of printing apparatus of portable character adapted for making contact prints on sensitized paper contained in light proof holders, including pressure means for moving the sensitized paper and the holder into contact with the negative to be printed, and simultaneously exposing the negative and printing paper to a source of illumination.

A further object includes the provision of transparent flexible sheet protecting means in the apparatus, adapted to be interposed between the negative and the sensitized printing sheet to prevent moisture from reaching the sensitized sheet during the printing operation, when a wet negative is printed.

A still further object is the employment of co-operating control means between the holder moving pressure means and the light exposing means to prevent the exposing of the sensitized sheet until the sheet has been forced into intimate printing contact with the negative to be printed.

Still another object is the provision of a printing apparatus capable of efficient and rapid operation by unskilled operators, in which the operators may visibly observe all necessary movements of their hands in the operation of the apparatus.

Another object is the provision of an apparatus for printing on sensitized sheets contained in the light tight holders, having a carrier receiving the holder and pressure means for depressing the holder to move the same toward the negative to be printed to cause the negative to enter the holder and move into contact with the sensitized sheet, and means for preventing accidental fogging of the sensitized sheet during the insertion and removal thereof from the apparatus, including common operating means for depressing the carrier to move the sheet in the holder into contact with the negative and simultaneously exposing the same to a source of illumination when the holder is so moved.

A still further object is the provision of locking means for the carrier normally maintaining the holder when disposed in the carrier in noncontacting relation with respect to the negative, and for preventing accidental exposure of the negative, and accidental opening of the apparatus to remove the negative therefrom during the printing operation.

A still further object is the provision of a portable daylight photographic contact printing apparatus having an openable printing head for the insertion or removal of a negative to be printed, and formed with a light tight receiving opening therein adapted to receive a carrier containing a sensitized sheet to be printed, and locking means carried by the cover for locking the same in negative retaining position, together with operating means for simultaneously depressing the carrier and the holder therein to move the sensitized sheet in the holder into printing engagement with the negative and to simultaneously effect the printing exposure.

Other objects and advantages of the invention will become apparent from the following description, taken in connection with the accompanying drawings illustrating a preferred embodiment of the invention, in which like reference characters refer to like parts in the several figures.

Fig. 1 is a side elevation of my improved portable daylight printing apparatus, showing the cover in closed, or operative position.

Fig. 2 is a front elevation of the apparatus, as disclosed in Fig. 1.

Fig. 3 is a top plan view, with the sheet metal closure of the hinged cover member removed to more clearly illustrate the pressure plate, and its associated operating parts.

Fig. 4 is a side elevation of my improved printer taken from the side opposite to that disclosed in Fig. 1.

Figs. 5 and 6 are enlarged fragmentary detailed views taken at right angles to each other, disclosing the operating means for actuating the camming means and its associated locking means.

Fig. 7 is an enlarged fragmentary vertical longitudinal sectional view taken through my improved printing apparatus, approximately on the plane indicated by the line 7—7 in Fig. 3, the carrier member for the sensitized sheet holder being shown in dotted lines in its depressed or printing position.

Figs. 8 and 9 are enlarged detail top plan and side elevational view, respectively, of the cam operating means for moving the carrier plate to and from printing position and the "microswitch" associated therewith for causing the printing exposure when the carrier plate is in printing position.

Fig. 10 is a longitudinal vertical sectional view through a photographic paper sheet carrier adapted for use with my printing apparatus.

In the drawings, the numeral 1 indicates a rectangular light excluding body or casing having a bottom 2, the side walls of the casing being preferably constructed of light sheet material having an open top into which is seated a printing table or unit 3. This printing table or unit comprises a plate 4 flanged downwardly, as indicated

at 5, to be snugly received in the upper end of the casing 1. Suitable spacing and supporting strips 6 are secured along the front and opposite flanged portions of the plate 4, resting on the upper edge of the body or casing 1 of the printing apparatus, as shown in Fig. 7 of the drawings, and support the printing table on the upper edge of the casing. A relatively thin strip 7 is secured against the spacing strip 6, extending around the top of the casing, having its upper edge disposed above the interposed strip 6 to form a combined light trap and drip trough 8 for the printing unit and its cover member, to which reference will later be made.

The flanged plate 4 form the top of the printing table, and is formed with a large, suitably shaped light opening 9 for admitting rays of light from the printing lamp or later to be described source of illumination in the casing 1, and a rabbeted strip or bead member 10 extends around the periphery of the light admitting opening 9 to receive a transparent negative support 11 in the form of a glass plate.

The rabbeted strip is preferably secured along the edges of the opening 9 in the plate 4 by screw fastenings 12 extending upwardly through apertures around the periphery of the opening 9, and a water tight seal or gasket member 13 is interposed between the edges of the glass 11 and its seat in the strip 10.

Referring to Figs. 1 and 7 of the drawings, a suitable source of illumination is provided for making the printing exposure, such as an electric light bulb 14, positioned between the rear edge of the opening 9 and the rear flange 5 of the printing table 4, and an opaque deflector member or baffle 15 inclines downwardly from the rear edge of the opening 9, extending across the casing between the light bulb 14 and the glass 11 to prevent the direct rays from the light bulb 14 from reaching the negative through the opening 9 in the printing platform 4. A mirror, or other suitable deflector means 16, as seen in Fig. 1, is suitably inclined above the bottom 2 of the casing to reflect light rays from the lamp 14 through the opening 9, the glass, and the negative supported thereby, the reflector 16 being bracketed or otherwise rigidly secured in the casing 1 at points 17 and 18.

Current is supplied to the bulb 14 to cause illumination thereof in any convenient manner, including an automatically operable "microswitch" circuit controlling member carried by the printing head. An electric connector plug socket 19 is mounted on the front casing wall, having one electrical conductor 20 extending to the light bulb 14, while the other electrical conductor 21 is connected between the bulb and the socket with a manually operable circuit controlling switch interposed in the conductor circuit, also the conductor leads 23 interrupt the conductor 21 and lead from the conductor 21 to the previously referred to automatically operable circuit closing "microswitch," as indicated at 24, best seen in Figs. 3 and 9 of the drawings.

The rear portions of the opposite sides of the casing 1 incline upwardly, as indicated at 25, to meet the horizontally flanged portion 26 of the elongated back member of the casing, constituting a brace portion for the back member, on which are mounted a pair of spaced upstanding brackets or hinge members 27. These hinge members are located adjacent the side members of the casing and carry a cross shaft or hinge pintle 28 fixed against rotation by pin members

29 passing through the bracket members and the shaft.

The photographic negative to be printed is placed on the glass 11, above the opening 9, and when a wet negative is to be printed, a sheet of very thin waterproof transparent material, such as the commercially known "Kodapak," is placed over the wet negative. A roll 30 of this material is preferably secured to the back panel of the casing on the bracket 31, so that the waterproof protecting sheet may be readily withdrawn from the roll over the wet negative, when desired, as indicated at 32.

The hinged cover or printing head of the apparatus is indicated generally at 33, and comprises spaced side members 34, best seen in Fig. 3, having notched rear ends 35 to fit under the flange 26 at the back of the casing. A top closure member 36 of sheet material is disposed across the side members 34 in light excluding relation, having its rear extremity bent downwardly and laterally to form a light trap 37 with the flange 26 of the back casing extension.

The front portion 38 of the top closure member 36 extends downwardly into the trough formed by the outer strips 7 around the edge of the printing table 4, constituting a light trap to prevent light from passing in between the printing platform and the printer head or cover 36. The side portions of this top or cover member also project into the troughs or light traps 8 at either side of the printing head.

The top closure or hinged cover member 36 is reinforced front and rear by the cross batten members 39 and 40 connecting the spaced side members 34, and the printing head 33 is hinged at its rear by the hinge members 41 on the cross shaft or hinge pintle shaft 28, these members having downwardly inclined extremities 42, limiting the opening movement of the printing head.

The head is preferably counterbalanced by coil springs 43, each having one end thereof secured in the hinge members 41 and the other end secured in a hexagonally shaped sleeve member 44 journaled on the shaft 28 and adapted to be fixed to the shaft by set screws 45.

The printer, as beforementioned, is designed to be used in conjunction with a special type of sensitized sheet or paper holder. This holder is similar to a standard commercial cut film holder so that the sensitized sheet may be inserted and retained in the holder, a dark slide being provided and inserted to render the holder as disclosed in Fig. 10, light tight.

The printing head cover 33 is equipped with a vertically shiftable pressure or carrier plate 46, extending through the opening 47 in the front portion 38 of the top closure member 36. The pressure plate or carrier 46 has its opposite parallel side edges bent downwardly and inwardly to provide inturned flanges 48, as seen in the drawings, for supporting the edge portions of the sensitized sheet holder, indicated generally at 49. This holder projects out beyond the end of the pressure plate or carrier to permit access to the dark slide 49a in the holder after the holder is inserted in the pressure plate or carrier 46.

On the front end of the pressure or carrier plate 46 is a light trap assembly to prevent the light from passing through the opening 47 in the printing head. This light trap comprises a pair of complementary laterally extending clamping members 50-51 disposed on the end of the carrier plate 46. The members 50-51 have special light excluding gaskets or shields 52 between

the members and the end of the carrier, and second gaskets or light excluding members 53 adapted to engage the holder 49 when the same is inserted in the carrier or pressure plate 46.

In order to move the carrier or pressure plate 5 vertically, so as to force the sensitized sheet 49b, retained in the holder by side retaining means 49c, into intimate contact with the negative on the glass 11, I provide the cover member with a pair of cam shafts 54—55 journaled in the spaced side members 34 of the printing head 33. The shaft 55 extends through one side of the cover, as shown in Figs. 2, 3 and 4, and carries an operating handle 56, to which reference will later be made. The two cam shafts 54—55 carry crank members 57 secured to the shafts adjacent the ends thereof, and link members 58 are connected to the crank members 57. One of these link members 58 is formed with a raised cam element 59 adapted to close the circuit to the electric light bulb 14 through the "microswitch" 24 when the cam members 60 are rotated to move the pressure plate or carrier to its printing position. The carrier plate is provided with a plurality of spaced longitudinally extending U-shaped channel members 61 slotted at 62 to permit the carrier plate and the channel members to move vertically with respect to the shafts 54—55. The cam members 60 are positioned between the side flanges of the channel members 61, and after the cam members 60 have been inserted into the channels, return or lifting plates 63 are secured across the parallel flanges of the channels 61 directly above the cams. To provide for a somewhat equalizing pressure of the cam members against the back of the pressure or carrier plate 46, leaf spring members 64 are secured at 65 in the base of the channels 61.

The cam members 60 are preferably of the disc shaped, eccentrically mounted type, as shown in the drawings, and are adjustably secured on the shafts 54—55 by the set screws or other suitable securing means 66.

Rotation of the shafts 54—55 by the handle member 56 in one direction depresses the spring members 64 producing a resilient pressure against the back of the carrier plate 46 at a plurality of spaced points, forcing the holder downwardly, causing the glass 11 to enter the sensitized sheet holder, as the carrier plate is moved downwardly, bringing the sensitized sheet to be printed into intimate contact with the negative on the upper surface of the glass. As the cams 60 are moved to bring the holder to this position, the camming portion 59 on the link member 58 closes the "microswitch," which illuminates the bulb 14, making the exposure. At the end of the exposure, the handle member is returned to its initial position, causing the carrier plate member to be elevated above the negative and the lamp 14 to be extinguished. This is accomplished by the cam members 60, as they are rotated, engaging the return or lifting plates 63, causing a lifting action on the channel members 61, which retracts the carrier plate 46 off the negative and the supporting glass 11 sufficiently to insert the dark slide in the sheet holder, and the subsequent removal of the sheet holder from the carrier plate.

Locking means are provided for preventing accidental rotation of the cam shafts. This locking means consists of a lock shaft 67 extending across the cover 33 and having its ends journaled in the spaced side members 34 thereof. Latch members 68 are pinned to the opposite ends of

the lock shaft, adapted to engage projections or pins 69, located in the drip trough 8 on the top of the printing table 4. A leaf spring 70 is secured to the lock shaft 67, one end of the spring being tensioned against the underside of the shaft 55 to rock the latch members 68 to locking position, in engagement with the stop pins 71 on the cover when the cover is raised, or in locking engagement with the pins 69 in the troughs 8 when the cover is closed.

The operating handle member 56 is bifurcated at 72 and carries a locking pin 73 rotatably and longitudinally slidable in the projecting portions of the handle member at either side of the bifurcated opening. A camming thumb lever 74 is fixed onto the end of the locking pin while a coil spring 75 surrounds the locking pin, normally pressing the cam 73a on the same against the fixed cam member 73b on the operating handle and the end of the pin toward the side of the cover. When the handle lever 56 is in the position shown in full lines in the drawings, with the cover locked and the carrier member elevated, the locking pin will be disposed in a locking recess 76 formed in the side of the hinged cover 33. The latch member 68 has a laterally extending, notched actuating arm 77 adjacent the handle member 56, disposed above an actuating pin 78 projecting from the inner arm 79 of the handle member 56. When the handle member is lifted, after the thumb lever 74 has been depressed to cam the pin 73 from its locking engagement with the recess 76, the actuating pin 78 will rock the latching levers 68 against the stop pins 69' into releasing position with respect to the pins or projections 69, permitting the printing head or hinged cover 33 to be raised for the removal or replacement of the negative. It should be observed that, in order to raise the cover, as just mentioned, the cam shaft 55 must be in the position shown in full lines in Fig. 7, with the carrier 46 elevated, and the lamp in the base extinguished.

In order to make the printing exposure, the thumb lever 74 must be depressed to cam the latch pin from its engagement in the side of the cover, but in this particular instance, the handle lever is rotated in the opposite direction to that necessary to release the hinge cover for the replacement or removal of the negative. When the handle is returned to its initial position, after the exposure, the spring 75 will snap the locking pin 73 into the latching recess 76 before the handle member 56 can be moved into the position where the latches 68 are disengaged. This prevents accidental release of the cover and subsequent fogging of the print.

When a wet negative is to be printed, the cover is raised, the negative placed on the glass support 11, and the waterproof transparent sheet 32 drawn from the roll 30 to cover the negative. A squeegee is then used in the usual manner to remove any air bubbles from between the negative and the transparent sheet, after which the cover is closed and latched in place by the two side latch members 68.

One of the light tight sensitized sheet holders 49 is then inserted in the carrier 46, and the dark slide of the holder is then withdrawn. Depression of the thumb lever 74 releases the operating handle locking means and the operating handle 56 is rotated to depress the carrier, holder, and the paper therein into contact with the transparent sheet 32 over the negative. The closing of the "microswitch" 24, as the operating

handle is moved, lights the lamp 14, exposing the sensitized sheet through the negative and its waterproof protecting sheet.

At the end of the proper exposure period, the handle is returned, and as it latches in place, the circuit is broken, extinguishing the lamp 14. Any excess water or moisture squeezed from the negative will be caught in the trough 8 around the printing head and be deflected to the rear of the apparatus by the light trap or trough 8. The dark slide in the holder may now be replaced and the holder and print removed for further processing. If a duplicate print is required, a second holder may be inserted, and the above procedure repeated.

Depression of the thumb lever 14 and upward movement of the handle 56 unlatches the hinged closure 34 so that the cover may be raised, the transparent sheet taken off the negative, and the negative removed.

A receptacle or pocket member 81, for conveniently holding the squeegee, is provided on the front panel of the casing, also one side of the casing carries a hinged inspection door 82, mounted thereon to permit access to the interior of the casing for making necessary interior inspections or adjustments, such as replacing the bulb 14, cleaning the reflector 16, etc.

Having thus described by invention, in conjunction with a preferred embodiment, as disclosed in the drawings, what I claim as new and desire to secure by Letters Patent is:

1. In a daylight printing apparatus, a light tight casing, a printing platform thereon, having a printing opening with transparent negative supporting means extending across said opening, a printing head hinged to said platform to cover said transparent supporting means, light excluding means between the printing head and said platform, pressure operated carrier means movably mounted in said printing head for vertical movement toward and away from said negative supporting means and adapted to removably receive and support a light excluding holder, containing a sensitized photographic sheet to be printed, having a removable dark slide for exposing the sensitized photographic sheet, and means for moving said carrier means toward said transparent negative supporting means to contact the sensitized photographic sheet therein with a negative on said negative supporting means, and away from said negative supporting means to permit the insertion of the dark slide in the holder and the removal of the holder from said carrier means.

2. In a daylight printing apparatus, a light tight casing having a source of printing illumination therein, a printing platform thereon having a printing opening formed therein with a negative supporting member extending across said opening, a light excluding printing head movably mounted above said platform to provide access to said negative supporting member, to place a negative thereon to be printed, light excluding means between the printing head and said platform, a carrier member movably mounted in said head for vertical movement from positions close to and spaced away from said negative supporting member, adapted to removably receive and support a holder, containing a sensitized photographic sheet to be printed, above said negative supporting member in juxtaposed relation thereto, camming means for moving said carrier member toward said negative supporting member to contact the sensitized photo-

graphic sheet in said holder with a negative on said negative supporting member, and movable to a spaced position away from said negative supporting member to permit removal or replacement of the holder in said carrier, and releasable locking means between the carrier and said casing for preventing accidental movement of the carrier toward said supporting surface when the same is in its spaced position away from the negative supporting member.

3. In a printing apparatus of the class described, a casing having a printing platform including a negative supporting surface, illuminating means for illuminating a negative when placed on said surface, a printing head hinged above said casing to move into light tight relation with the platform, locking means between the platform and head for securing said head in said light tight relation, a light excluding sensitized sheet receiving carrier member movable within the head toward and away from said negative supporting surface and operating means cooperating with said carrier and said locking means, movable in one direction to move the head toward said surface and movable in the opposite direction to retract the head from said surface and to release said locking means.

4. In a printing apparatus of the class described, a casing having a printing platform thereon having a transparent negative supporting surface, illuminating means for illuminating a negative when placed on said supporting surface to make the printing exposure; a printing head hinged above said casing to move into light tight relation with said platform, locking means between said head and platform for securing said head in said light tight relation, sensitized photographic sheet holding carrier means movably mounted within the head to move between positions toward and away from said negative supporting surface, operating means in said head movable in one direction to move said carrier means toward said supporting surface to contact the sensitized photographic sheet in the said carrier means therewith, and movable in the opposite direction to retract the sensitized sheet from the negative on the supporting surface, and further movable in the last direction to release said head securing locking means, and supplemental locking means for locking the operating means in position intermediate its carrier moving and latch moving positions.

5. In combination, a daylight printing apparatus having a light excluding casing, negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting, negative supporting opening formed therein, light excluding cover means removably disposed over said printing opening, depressible carrier means mounted in said cover means, and a light tight sensitized photographic sheet holder adapted to be received and supported in said depressible carrier means in parallel relation to said negative supporting opening, said holder having a displaceable dark slide therein adapted to face said printing opening when the holder is in said carrier means.

6. In daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting negative supporting opening formed therein, light excluding cover means removably disposed over said printing opening, a depres-

sible carrier member mounted in said cover means, adapted to receive and support a light proof sensitized photographic sheet holder therein, in parallel relation to said negative supporting opening, with a removable dark slide facing said opening, and carrier moving means in said cover means for depressing said carrier to bring the sensitized sheet in the holder into contact with a negative on said negative supporting opening when the dark slide is withdrawn.

7. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting negative supporting opening formed therein, light excluding cover means removably disposed over said printing opening, depressible carrier means mounted in said cover means to receive and support a light proof sensitized photographic sheet holder in parallel relation to said negative supporting opening, said holder having a displaceable dark slide facing said opening, and carrier moving means in said cover means movable in one direction for depressing said carrier means to bring the sensitized sheet in the holder, with the dark slide withdrawn, into contact with a negative on said negative supporting opening, and movable in another direction to elevate said carrier above said negative to permit replacement of the dark slide and removal of the holder from the carrier.

8. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting, negative supporting opening formed therein, light excluding cover means removably disposed over said printing opening, depressible carrier means mounted in said cover means, adapted to receive and support a light proof sensitized photographic sheet holder in parallel relation to said negative supporting opening, said sheet holder having a displaceable dark slide facing said opening for permitting access to the sensitized sheet, carrier moving means in said cover means movable in one direction for depressing said carrier to bring the sensitized sheet in the holder, with the dark slide withdrawn, into contact with a negative on said negative supporting opening, and movable in another direction to elevate said carrier above said negative to permit replacement of the dark slide and removal of the holder from the carrier, and exposure operating means connected to said illuminating means for illuminating the same, operable by said carrier moving means when the carrier moving means is moved to its carrier depressed position, and extinguishing said illuminating means when the carrier moving means moves the carrier toward its elevated position.

9. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting negative supporting opening formed therein, light excluding cover means removably disposed over said printing opening, depressible carrier means mounted in said cover means, adapted to receive and support a light proof sensitized photographic sheet holder in parallel relation to said negative supporting opening, with a displaceable dark slide therein facing said opening, carrier moving means in said cover means movable in one direction for depressing said car-

rier to bring the sensitized sheet in the holder, after the dark slide is withdrawn, into contact with a negative on said negative supporting opening, and movable in another direction to elevate said carrier above said negative to permit replacement of the dark slide, and removal of the holder from the carrier, exposure operating means connected to said illuminating means for lighting the same, operable by said carrier moving means when the same moves the carrier means to depressed position, and extinguishing said illuminating means when the moving means moves the carrier toward elevated position, and releasable locking means between said cover means and said printing platform releasable by said carrier moving means upon movement thereof in said carrier elevating direction.

10. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting, negative supporting opening formed therein, light excluding cover means removably disposed above said printing opening, depressible carrier means mounted in said cover means, adapted to receive and support a light proof sensitized photographic sheet holder in parallel relation to said negative supporting opening, said holder having a displaceable dark slide facing said opening, carrier moving means in said cover means movable in one direction for depressing said carrier to bring the sensitized sheet in the holder, after the dark slide is withdrawn, into contact with a negative on said negative supporting opening, and movable in another direction to elevate said carrier above said negative supporting opening to permit replacement of the dark slide and removal of the holder from the carrier, exposure operating means connected to said illuminating means for lighting the same, operable by said carrier moving means when the carrier means is moved to its depressed position, and for extinguishing said illuminating means when the moving means is moved to move the carrier toward its elevated position, releasable locking means between said cover means and said printing platform movable to release position by said carrier moving means when the same moves said carrier means to its elevated position only, to permit said light excluding cover means to be removed for the application of a negative to said negative supporting opening and for the removal of a printed negative from said negative supporting opening.

11. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting negative supporting opening formed therein, light excluding cover means removably disposed over said printing opening, depressible carrier means mounted in said cover means, adapted to receive and support a light proof sensitized photographic sheet holder in parallel relation to said negative supporting opening, said holder having a displaceable dark slide facing said negative supporting opening, carrier moving means in said cover means movable in one direction for depressing said carrier to bring the sensitized sheet in the holder, after the dark slide is withdrawn, into contact with a negative on said negative supporting opening and movable in another direction to elevate said carrier above said negative to permit replacement of the dark slide and removal of the holder from the carrier, ex-

posure operating means connected to said illuminating means for lighting the same, operable by said carrier moving means when the carrier means is moved to depress said carrier means, and operable to extinguish said illuminating means when the carrier moving means moves the carrier to its elevated position, and releasable locking means for locking the carrier in said elevated position.

12. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing support on said casing having light admitting negative supporting means formed therein, light excluding cover means removably disposed over said printing support, depressible carrier means mounted in said cover means constructed and arranged to receive and support a light proof sensitized photographic sheet holder in parallel relation to said negative supporting means, said holder having a displaceable dark slide facing said negative supporting means, carrier moving means in said cover means movable in one direction for depressing said carrier to bring the sensitized sheet in the holder, after the dark slide is withdrawn, into contact with a negative on said negative supporting means, and movable in another direction to elevate said carrier means above said negative supporting means to permit replacement of the dark slide in the holder and removal of the holder from the carrier means, and releasable locking means between said carrier moving means and said cover for locking said carrier moving means in said carrier elevating position.

13. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing support on said casing having a light admitting negative supporting means formed therein, light excluding cover means removably disposed over said printing opening, a depressible carrier member mounted in said cover means, constructed and arranged to receive and support a light-proof sensitized photographic sheet holder in parallel relation to said negative supporting opening, said sheet holder having a displaceable dark slide therein facing said opening, manually operable carrier moving means in said cover means movable in one direction to move said carrier means toward said negative supporting opening in the printing support to contact the sensitized sheet to be printed and disposed in said holder, with a negative to be printed when placed on said negative supporting opening, after the dark slide is displaced, said manually operable carrier moving means being movable in the opposite direction to move said carrier means and holder into spaced relation with respect to said printing opening and the negative thereon to permit replacement of the dark slide, and removal of the holder from said carrier means, said carrier moving means being further movable in the last mentioned direction, and releasable locking means between the cover means and said printing support engageable by said manually operable carrier moving means upon said last mentioned further movement thereof to move the said locking means for the cover means to release position, to permit displacement of the cover means for purposes of replacement or removal of the said negative on the printing support.

14. In a daylight printing apparatus, a light excluding casing having negative illuminating

means therein for making the printing exposure, a printing platform on said casing having a light admitting negative supporting opening therein, light excluding cover means removably disposed over said printing opening, depressible carrier means mounted in said cover means constructed and arranged to receive and support a light-proof sensitized photographic sheet holder in parallel relation to said negative supporting opening, said holder having a displaceable dark slide facing said printing opening, manually operable carrier moving means in said cover means, movable in one direction for moving said carrier means toward said negative supporting opening in the printing platform to bring the sensitized sheet in the holder over said negative supporting opening and into printing relation with a negative positioned over said negative supporting opening, after the dark slide has been removed, said manually operable carrier moving means being movable in the opposite direction to move said carrier means into spaced parallel relation with said printing opening and the negative thereon, to permit replacement of the dark slide in the holder and removal of the holder from said carrier means, said carrier moving means being further movable in the last mentioned direction, releasable locking means between the cover means and said printing platform engageable by said manually operable carrier moving means incident to said last mentioned further movement of the moving means to engage and release the said locking means for the cover means to permit displacement of the cover means from said printing opening for replacement of the said negative on the printing opening, and a second manually operable locking means for the manually operable cover moving means for locking the same between its carrier means elevating position and its cover locking means releasing position.

15. In a daylight printing apparatus, a light excluding casing having negative illuminating means therein for making the printing exposure, a printing platform on said casing having a light admitting negative supporting opening therein, light excluding cover means removably disposed over said printing opening, a depressible carrier member mounted in said cover means constructed and arranged to receive and support a light-proof sensitized photographic sheet holder in parallel relation to said negative supporting opening with said holder having a displaceable dark slide facing said opening, manually operable carrier moving means in said cover means, movable in one direction for moving said carrier means toward said negative supporting opening in the printing platform to bring the sensitized sheet in the holder, after the dark slide is displaced, into printing relation with a negative positioned over said negative supporting opening, said manually operable carrier moving means being movable in the opposite direction to move said carrier means into spaced relation with respect to said printing opening and the negative thereon, to permit replacement of the dark slide in the holder and removal of the holder from said carrier means, said carrier moving means being further movable in the last mentioned direction, releasable locking means between the cover means and said printing platform engageable by said manually operable carrier moving means incident to said last mentioned further movement of the moving means to release the said locking means for the cover means to permit displacement of the cover means for replacement or removal of

the said negative on the printing platform, and illumination control means operable by said carrier moving means when the same is moved to position the carrier means in the aforesaid printing position.

16. In a portable daylight photographic printing apparatus of the class described, a light tight casing having a printing lamp therein, a printing platform positioned on said casing in light tight relation thereto, and having a printing opening therein for admitting light therethrough from said printing lamp, transparent negative supporting means positioned over said light admitting opening for mounting a negative to be printed thereon, a cover member hingedly mounted on said platform in light tight relation, a carrier plate vertically movable in the cover member to and from a juxtaposed printing relation with respect to said negative supporting means comprising a substantially flat plate having spaced intumed parallel side edges adapted to support a light tight removable holder therein having a displaceable dark slide, and containing a sensitized photographic sheet to be printed, carrier moving means in said cover member comprising spaced parallel rotatable cross shafts journaled in said cover above and across said carrier plate, handle means connected to one of said shafts for manual operation thereof, crank and link means between said shafts for simultaneous operation thereof, cam members fixed on said shafts adjacent the upper face of said carrier plate at spaced points, and resilient tensioning means between said cam members and said carrier plate for resiliently tensioning the sensitized photograph sheet to be printed against a negative to be printed on said transparent negative support when the camming means moves the carrier plate to printing position.

17. In a portable daylight photographic printing apparatus of the class described, a light tight casing having a printing lamp therein, a printing platform positioned on said casing in light tight relation having a printing opening therein for admitting light therethrough from said printing lamp, a transparent negative support positioned over said light admitting opening for mounting a negative to be printed thereon, a cover member hingedly mounted on said platform in light tight relation, a carrier plate vertically movable in the cover member to and from a juxtaposed printing relation with respect to said negative support, said carrier plate comprising a substantially flat plate having spaced intumed parallel side edges constructed and arranged to support a light tight removable holder therein having a displaceable dark slide and containing a sensitized photographic sheet to be printed, carrier moving means in said cover member comprising spaced parallel rotatable cross shafts journaled in said cover above and across said carrier plate, handle means connected to one of said shafts for manual operation thereof, operating means between said shafts for simultaneous operation thereof, cam members fixed on said shafts, elongated U-shaped-channel members disposed on the upper surface of the carrier plate for receiving the cam members between the side flanges thereof, said side flanges having guide slots formed therein to permit relative vertical movement between the channel members and the

cross shafts, spring means disposed in the channels between the cam members and the bases of the channels resiliently tensioning the plates toward said negative support to move the sensitized sheet in the carrier plate into intimate printing contact with a negative on the negative support, retainer plate members secured across the edges of the side flanges of the channels, above said cam members, to retain the cams in the channels, and engageable by the cam members upon camming movement thereof to retract said carrier plate from its printing position.

18. In a portable daylight photographic printing apparatus, a light tight casing having a printing lamp therein, a printing platform positioned on the upper end of said casing in light tight relation thereto, having a printing opening therein for admitting light therethrough from said printing lamp, a transparent raised negative support mounted on the printing platform over said opening to support a negative to be printed thereon, light excluding cover means hingedly secured to the rear of the casing, trough shaped light excluding moisture drainage means extending along the outer edge of said platform for receiving the lower edges of the cover means, releasable locking means between the cover means and the platform normally retaining the cover in light tight cooperative relation, carrier means vertically movable within the cover means to move to and from parallel juxtaposed printing relation with respect to said raised negative support, light excluding means between said carrier means and said cover means, manually operable camming means journaled in said cover means including an operating shaft having a handle thereon, movable in one direction to depress said carrier means to printing relation, circuit and circuit closing means between the printing lamp and the camming means operable to illuminate said lamp when the cam means moves the carrier means to printing position only, and releasable locking means disposed on the handle means for locking the handle means in nonprinting position only.

19. In a printing apparatus of the class described, a printing table, a source of controllable illumination below said table, said printing table having a printing opening formed therein, a raised transparent negative support disposed over said opening, a light trap-drain trough extending around said printing table, light excluding cover means hingedly mounted with respect to said printing table, a roll of transparent water proof sheet material disposed in said cover at one side of said transparent negative support adapted to be drawn across a wet negative disposed on said support, a movably mounted sensitized photographic sheet holding carrier extending into said cover means from the exterior thereof, to move to and from juxtaposed parallel relation with respect to said negative support to contact the sensitized photographic sheet in the carrier with the water proof sheet material over the negative when making a print from a wet negative, light excluding means between said carrier and cover, and camming means in the cover means operatively engaging said carrier means for moving the same to and from said contact printing position.

HAROLD F. STIFFLER.