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PHOTOGRAPHIC ENLARGING EASEL

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Filed Aug. 21, 1961, Ser. No. 132,737

3 Claims. (Cl. 95—1.1)

This invention relates to a photographic enlarging easel and more particularly to easels incorporating means for imprinting information on a portion of the enlarged photograph.

In many instances it is highly desirable to provide identifying indicia such as titles or other legends on enlarged photographic prints. Previous devices have contemplated the use of a light box upon which negatives are imprinted in such manner that a direct contact print of information contained in the negative may be made upon a portion of the enlarged print.

A primary shortcoming of this method is the necessity of producing separate photographic negatives for each title. This is time-consuming and expensive because of the quantities of film, etc. required. Moreover, the negatives are attached to the light box by pressure-sensitive adhesive tape and consequently changing of the negatives requires a considerable period of time and greatly slows down the printing operations.

Different types of photographs require different titling in the sense that the titles will sometimes be printed parallel to the longer edge of the print and other times parallel to the shorter edge of the print, depending upon the orientation of the picture. Also, on occasion, it will be desired to print simultaneously both a title and some other legend such as a security classification.

The present invention contemplates a photographic easel having a direct contact titling printer mountable thereon in different positions for accomplishing different titling operations, the titling printer being designed to eliminate the use of photographic negatives while at the same time an enlarged picture is being printed adjacent thereto.

Another object of the invention is to provide an enlarging easel of the character described in which one or more titles or legends may be printed in desired locations relative to the picture.

A further object of the invention is to provide an enlarging easel of the character described in which the size of the enlargement printing area may be easily and quickly controlled, the device providing comparative indicia whereby the size and shape of the picture may be related to the size, shape and positioning of the titles.

A still further object of the invention is the provision in an enlarging easel of the character described of a light box adapted to effect contact printing through a stencil so as to eliminate any requirement for a photographic negative.

Another object of the invention is to provide, in a light box of the character set forth, a means for releasably securing the stencil in operative position in a rapid and simple manner.

Yet another object of the invention is to provide a self-tightening attaching clip for securing a flexible stencil sheet to a contact printer, the clip being compact in form but adapted for rapid and simple operation.

Still another object of the invention is to provide an enlarging easel of the character described in which the printing paper is resiliently pressed against the confronting portions of the apparatus in such manner as to accommodate irregularities while still providing a sharp, clear image of both the picture and the title therefor.

Further objects and advantages of our invention will be apparent as the specification progresses, and the new and useful features of our photographic enlarging easel will be fully defined in the claims attached hereto.

The preferred form of our invention is illustrated in the accompanying drawing forming part of this application, in which:

FIGURE 1 is a perspective view of a photographic titling easel constructed in accordance with the present invention;

FIGURE 2, an enlarged cross-sectional view taken substantially on the plane of line 2—2 of FIGURE 1;

FIGURE 3, a bottom plan view of one of a direct contact printing light box forming a portion of the apparatus of FIGURES 1 and 2;

FIGURE 4, an enlarged cross sectional view taken substantially on the plane of line 4—4 of FIGURE 2.

While we have shown and described the preferred form of our invention, it should be understood that various changes or modifications may be made within the scope of the claims attached hereto without departing from the spirit of the invention.

Referring to the drawings in detail, it will be seen that the photographic enlarging easel of the present invention essentially consists of a base 11 having a flat upper surface 12 adapted for supporting a light-sensitive sheet 13 of photographic paper, the surface 12 being formed of resilient material for urging the paper into intimate contact with the under side of a frame 14 swingably mounted on the base and formed to define an open printing area 16 and also against the under side of a direct contact printer 17 carried on the frame 14 and having a stencil 18 on its under side adapted to title a photograph being printed through the open printing area 16.

The easel proper, consisting of the base 11 and the swingable frame 14, is shown in the fully operatively engaged general configuration but is modified somewhat to adapt it for use with the contact printer 17. As illustrated in the drawing, the base 11 is of rectangular form and is provided with a hinge 19 pivotally securing the frame 14 to the base.

In order to provide a required rigidity, the frame 14 is here shown as comprising a rectangular edge member 21 of L-shaped form having a rectangular plate 22 secured thereto by as rivets 23, the central portion of plate 22 being cut out in such manner that the plate 22 will define the rectangular open printing area 16.

As may best be seen in FIGURE 1 of the drawing, an over-center device 24 is attached between the base 11 and frame 14 and acts to press the frame 14 firmly against the surface 12 when the frame is in down position, and to yieldably hold the frame up when the latter is in its elevated position. The device 24 consists of a pair of telescoping tubular members 26 and 27 pivotally secured to a pin 28 on frame 14 and a bracket 29 on base 11, respectively. Mounted within the larger tube 27 is a coil spring 31 which tends to urge tube 26 out of tube 27. When the frame is in the down position illustrated in FIGURE 1, the spring 31 exerts downward pressure which cooperates with the weight of the frame and contact printer 17 to urge the frame firmly against the sheet of photographic paper 13. When the frame 14 is swung upwardly, the device 24 goes past its over-center position and the spring 31 then tends to keep the frame from falling down on the hands of the operator.

In accordance with the present invention the contact printer 17 includes a light source 32 adapted to be sup-
ported on the frame 14 over a portion of the opening area 16, a light-tight housing 33 enclosing the light source 32 and having a light-transmitting opening 34 at its lower side, together with means 36 on the housing 33 for releasably engaging the ends of the stencil 18 and pulling it taut over the opening 34 whereby light from the source 32 can shine through transparent areas 37 of the stencil for tilting a photograph being printed through the open printing area 16.

The means 36 here consists of clip members 38 pivotally mounted in recesses 39 formed in the housing 33 at opposite ends of the light-transmitting opening 34, together with resilient cushions 41 mounted in the recesses 39 at the sides thereof adjacent to the opening 34, the clip members being provided with springs 42 biased to urge the inner edges of the clip members toward the cushions 41. To install the stencil 18, the outer edges of the clip members are depressed and the ends of the stencil pass between the inner edges of the clip members and their resilient cushions. The clip members are then released and the springs 42 will cause the devices to grasp the opposite ends of the stencil between the clip members and their associated resilient cushions in such manner that the stencil 18 will be pulled taut across the opening 34.

In order to support the stencil 18 and at the same time diffuse the light from the source 32, we prefer to mount a translucent diffusion plate 43 across the opening 34. Preferably, as shown in FIGURE 4 of the drawing, the plate 43 projects slightly below the bottom side of the housing 33 so that firm contact will be obtained with the stencil 18 when the latter is pulled taut by the means 36.

As an important feature of the present invention, the contact printer 17 does not require a photographic negative but instead is designed for use with a stencil. Preferably the stencil is flexible in order to permit its use with the mounting means 36 in such manner that the bottom of the printer will be essentially flat. We have found that wax stencils of the character commonly used in stencil duplicators of the "Mimeograph" type are suitable for present purposes. These stencils consist of a light-transparent base which usually is provided by a silk screen or the like, and a wax coating which can be displaced from selected areas of the stencil by the impact of typewriter type bars or by hand-held instruments such as a stylus. The particular stencil chosen should have a wax coating which is substantially opaque at least to certain wave lengths of light that have found that a red-colored wax material is ordinarily very effective due to the fact that most photographic enlargement papers are not sensitive to red light.

The use of the described stencil material greatly facilitates the titling of enlargements, particularly where each print must have a different title. Obviously merely typing the information onto the stencil, which is then ready for immediate use, is more economical of both time and materials than preparing the titles, photographing them and then developing the film to prepare it for use in a titler.

As shown here, the light source 32 consists of a "thin-line" incandescent electric light bulb screwed into a socket 44 mounted in the housing 33. The "thin-line" type of bulb consists essentially of a tubular envelope 46 having single strand filaments 47 extending substantially the length thereof. These bulbs are ordinarily designed for use with household circuits in the 100-120 volt class. We have found that reducing the voltage impressed on the filament 47 will result in certain unexpected advantages. In brief, the photographic enlarging paper has printing characteristics different from contacting printing paper. Basically, the enlarging paper is more sensitive and requires less light. Too much light tends to burn in the image and cause fogging and other unwanted effects. Therefore it is highly desirable that the intensity of the light emanating from the source 32 be controlled to suit the characteristics of the enlargement paper.

In the second place, the mounting of the contact printer 17 on the swingable frame 14 for swinging movement therewith causes a considerable amount of vibration and other stresses on the filaments 47. We have found that reducing the voltage considerably below the rated capacity of the filament extends their life, due, probably, to the filament material having greater strength at the resultant lower operating temperatures.

In the third place, a 40-watt incandescent bulb such as the type used here will produce very considerable quantities of heat energy when operated at its rated voltage. Were the light source 32 to be so operated, and other means such as filters used to reduce the light intensity, additional cooling means would have to be provided. We have found that mounting resistance 48 in the circuit to drop the voltage to about 40 volts will provide the correct light intensity, will greatly prolong the life of the bulb, and will not cause undue heating of the printer 17 even though the housing 33 is provided with ventilation openings or other cooling means.

The resistance 48 may be of any suitable type and preferably is variable to accommodate the device to various types of printing paper. As shown in FIGURE 1 of the drawings, the resistance 48 may be mounted in a housing 49 secured to the base 13. In the preferred arrangement, the housing 16 is provided with the contact printer 17 for the enlarger (not shown) may be provided by suitable wiring 52-53.

In accordance with the present invention, the size and shape of the open printing area 16 may be quickly and accurately controlled and related to the area or areas on which the title is imprinted. For this purpose, the housing 33 of contact printer 17 is provided with a straight edge 54 and the housing is mounted with this edge parallel to the confronting edge 56 of the opening 16. Disposed in the opening 16 are a pair of thin metal leaf members 57 and 58 which provide straight edges 59 and 61. The leaf members 57-58 are rectangularly related as illustrated in FIGURE 1, so that edges 59-61 will cooperate with housing edge 54 and frame edge 62 to define the rectangular area in which the picture portion of the photograph is actually printed.

As shown in FIGURE 1, the leaf members 57-58 are provided with upstanding members 63 and 64 which are slidably mounted in slots 65-67 formed in the plate 32. The opposite ends of the leaf members are provided with upstanding members 63 which slide in corresponding slots 69.

As a feature of the invention, one or more of the contact printers 17 may be utilized and may be mounted in different positions so as to title the pictures where desired. For this purpose the housing 33 is provided with a pair of vertical bolts 71 which are threadably engaged to the plate 32. The opposite ends of the leaf members are provided with upstanding members 63 which slide in corresponding slots 69.

As a feature of the invention, one or more of the contact printers 17 may be utilized and may be mounted in different positions so as to title the pictures where desired. For this purpose the housing 33 is provided with a pair of vertical bolts 71 which are threadably engaged to the plate 32. The opposite ends of the leaf members are provided with upstanding members 63 which slide in corresponding slots 69. A number of openings 72 are provided in the plate 22 at locations which will mount the printer or printers 17 in predetermined positions. Rapid adjustment of the device to different sizes and shapes of prints is accomplished by providing index marks 74 adjacent to the slots 65-67 so that the leaf members 57-58 may be quickly and accurately moved to the desired position.

As may be seen in FIGURE 2 of the drawings, the under side of the printer 17, while substantially flat, nevertheless contains certain unavoidable irregularities due to the presence of the stencil 16. Moreover, the leaf member 57 underneath the stencil and provides further irregularity. In this connection, it should be noted that the irregularities depicted in the drawing are exaggerated somewhat for clarity of illustration, the thicknesses of the stencil 18 and leaf member 57 actually being measured in a few thousandths of an inch. Even this thickness, however, could raise the frame relative to the paper sufficiently to cause fuzzing of the titles, etc. Accordingly we prefer to provide the surface 12 in the form of a pad 76 of sufficient resiliency to accommodate itself to irregularities and press the paper 13 firmly against the stencil 18.
From the foregoing it will be apparent that we have provided a novel and useful self-lifting photographic enlarging easel which is well adapted for producing sharp, clear titles on photographic enlargements without requiring the use of additional negatives and the attendant processing operations required to produce same.

We claim:

1. An easel adapted for effecting simultaneous printing and titling of photographic enlargements, comprising a base having a flat upper surface adapted for supporting a sensitized sheet, said surface being formed of resilient material, a frame swingably mounted on said base and formed to define a rectangular open printing area, a light source supported on said frame over a portion of said open printing area, a light-tight housing enclosing said light source and having a straight edge extending across said open printing area parallel to two of the sides thereof, said housing being formed with a light-transmitting opening at its lower side, means for attaching said housing to said frame in a plurality of positions relative to said open printing area, leaf members slidable on said frame and having straight edges cooperative with said edge of said housing and with said frame for adjusting the size and shape of said rectangular open printing area, corresponding indices on said frame adjacent to said leaf members whereby said easel may be quickly adjusted to accommodate different sizes of sensitized photographic paper, and means on said housing formed for releasably engaging the ends of a flexible substantially opaque stencil and pulling it taut over said light-transmitting opening whereby light from said source can shine through transparent areas of the stencil so as to title a photograph being printed through the open printing area of the swingable frame.

2. An easel of the character defined in claim 1, wherein the housing is formed with recesses in its lower side at opposite ends of the rectangular open printing area and has resilient cushions mounted in said recesses at the sides thereof adjacent to said open printing area, and the means on the housing formed for releasably engaging the ends of a flexible substantially opaque stencil and pulling it taut over said light transmitting opening comprising clip members pivotally mounted in said recesses and having edge portions movably against said resilient cushions, and spring means on said clip members biased to urge the latter into clamping engagement against said resilient cushions.

3. An easel of the character defined in claim 1, wherein means is provided for controlling the intensity of the light emitted from the light source.

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