Dec. 2, 1924. 1,517,669

J. C. DEANE

PHOTOGRAPHIC PRINTING APPARATUS

Filed Feb. 28, 1923 2 Sheets-Sheet 1

Fig. 1.

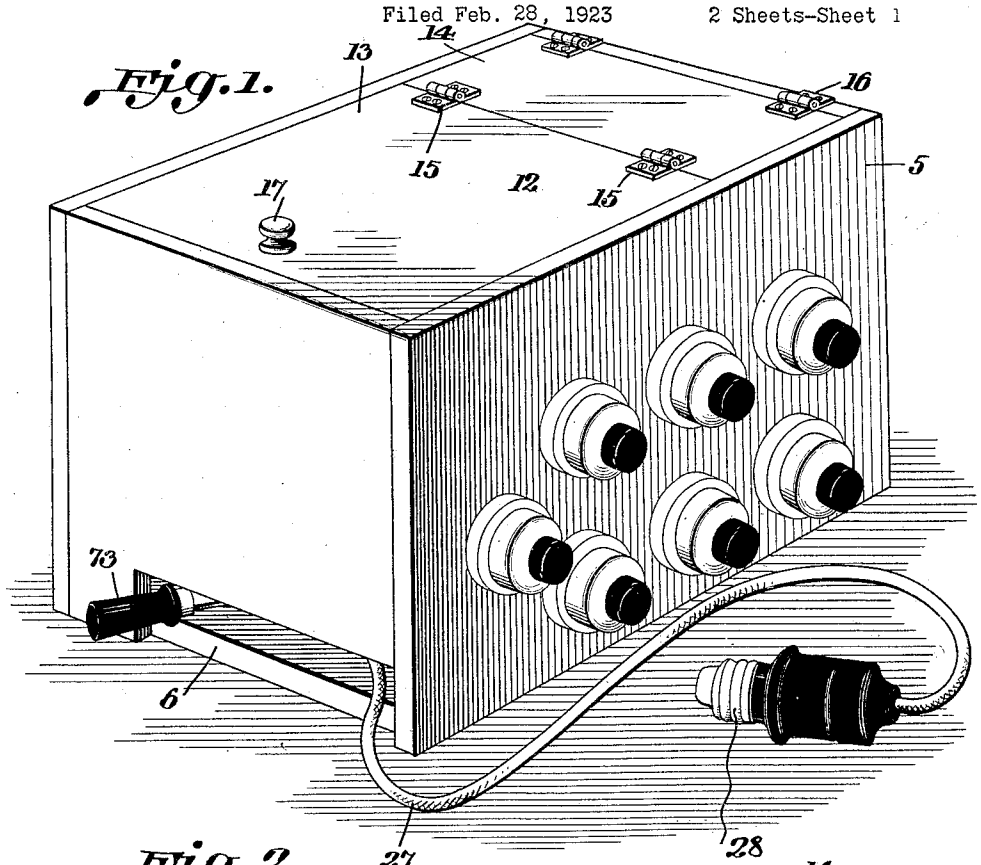
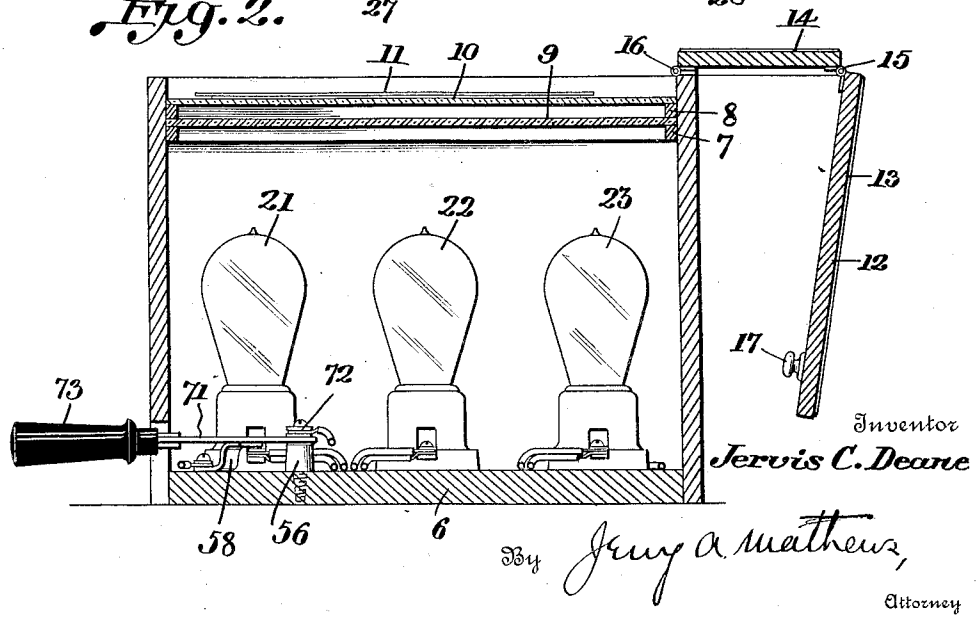


Fig. 2.



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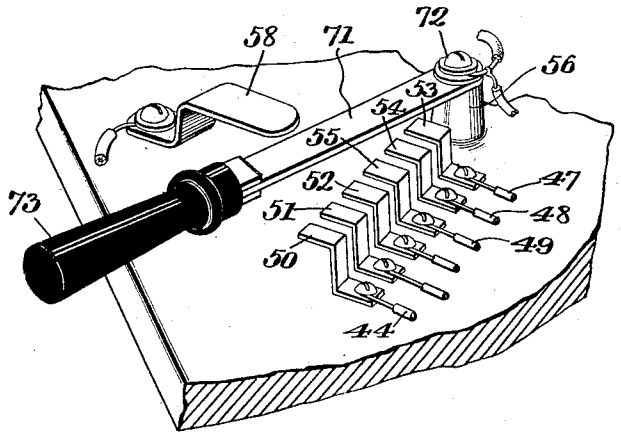
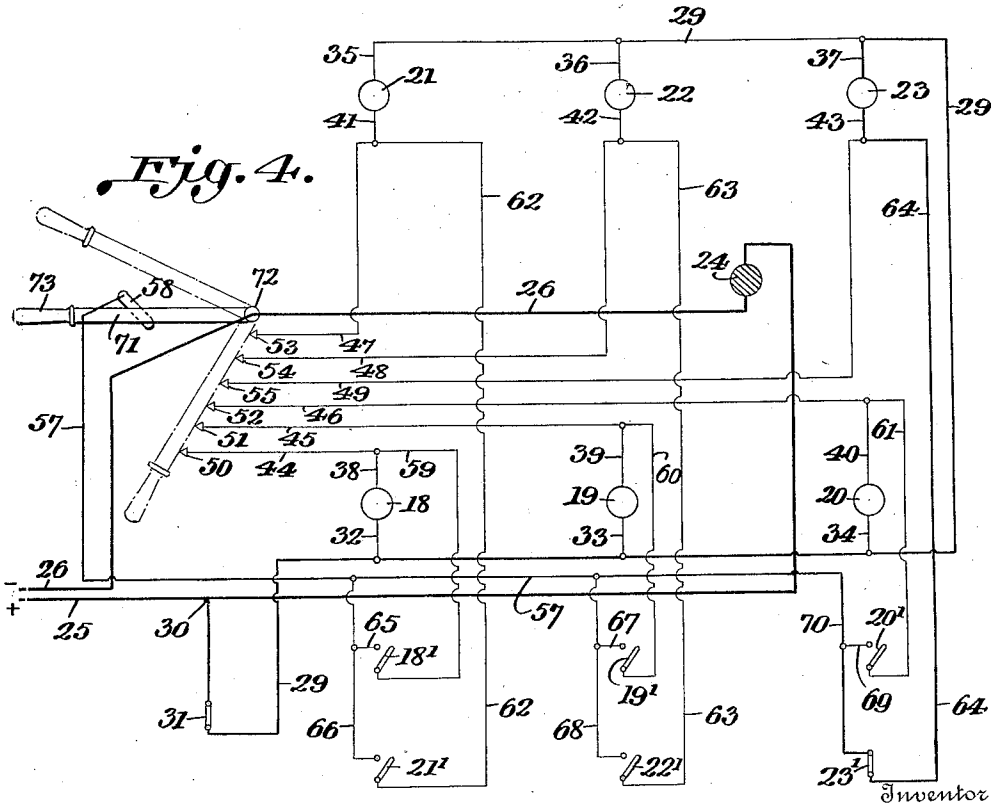


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JERVIS C. DEANE, OF WASHINGTON, DISTRICT OF COLUMBIA.

PHOTOGRAPHIC-PRINTING APPARATUS.

Application filed February 28, 1923. Serial No. 621,821.

To all whom it may concern:

Be it known that I, JERVIS C. DEANE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Photographic-Printing Apparatus, of which the following is a specification.

My invention relates to apparatus for use in printing from photographic negatives, by means of artificial light.

An important object of the invention is to provide apparatus of the above mentioned character, so constructed that the intensity of the light employed may be controlled or varied with respect to any particular portion of the negative, in order to produce an even print from an unbalanced negative.

A further object of the invention is to provide means whereby any one or more of a number of spaced lights may be properly selected, and caused to glow, and subsequent to which all of the lights are caused to simultaneously glow, such operation being controlled by a single switch element, whereby the operator may make the change in a fraction of a second, and the printing may be done accurately.

Other objects and advantages of the invention will be apparent during the course of the following description.

In accordance with my invention I provide a casing or box, within which are arranged a plurality of electric lights, preferably disposed in a rectangular group. By this arrangement, a desired light or lights may be selected, depending upon the condition of the plate or negative, and when the controlling switch is moved to the selecting position, the selected light will glow for a suitable length of time, and at the end of this time the control switch is shifted to the main or printing position, and all of the lights will simultaneously glow. By this means, the desired portions of the photographic negative will be acted upon by the light for a suitable length of time, prior to the glowing of all of the lights, which distributes the light uniformly over the entire surface of the print paper. A particular advantage gained in my construction is that a single switch element is employed for causing the selected light or lights to glow, and is also employed for causing all of the lights to simultaneously glow. The switch element is also so arranged that the movement from the selecting position to the printing position is in the same direction. This is advantageous inasmuch as it produces a device which is highly convenient to be used, and is quick in operation, whereby the operator may observe the time clock, and hence make the changes in a fraction of a second.

A further object of the invention is to provide a device of the above mentioned character which is extremely simple in construction, and convenient in use.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a perspective view of apparatus embodying my invention,

Figure 2 is a longitudinal sectional view through the apparatus, certain of the lights being in elevation,

Figure 3 is a perspective view of the control switch, and,

Figure 4 is a diagrammatic view of the lights and circuits.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates a casing or box, having a bottom 6. Arranged in the upper portion of the casing are supports 7 and 8. The support 7 preferably carries a ground glass 9, while the support 8 carries preferably a transparent glass 10. The glass 10 serves to receive thereon the photographic negative 11. The numeral 12 designates a platen, formed in sections 13 and 14, hinged together, at 15. The section 14 is hinged to the casing 5 as shown at 16. The section 12 is preferably provided with a knob 17, by means of which the platen may be raised and lowered.

Arranged within the casing 5 and suitably mounted upon the bottom 6 are electric lamps 18, 19, 20, 21, 22, and 23. These lamps are used as sources of light in the artificial printing, and would ordinarily be of the same candle power. The numeral 24 designates a colored light, also mounted upon the base 6, which permanently burns, but will not effect the printing of the paper.

The numeral 25 may be regarded as the positive wire of the main line or circuit, which is connected with one pole of a source of current. The wire 25 is connected with one terminal of the colored lamp 24, while its other terminal is connected with the nega-

tive or return wire 26, which is connected with the opposite pole of the source of current. The wires 25 and 26 are included in a cable 27, which may have suitable connection with a coupling 28, adapted to be screwed into the usual electric light socket, if desired.

Connected with the wire 25 is a common feed wire 29, shown at 30. A general switch 31 is connected with the wire 29. Branch wires 32, 33, 34, 35, 36, and 37 are connected with the general feed wire 29, and have electrical connections with the electric lamps 18, 19, 20, 21, 22, and 23 respectively. Branch wires 38, 39, 40, 41, 42, and 43 are electrically connected with the opposite terminals of the lamps 18, 19, 20, 21, 22 and 23 respectively.

The wire 38 is electrically connected with a wire 44; wire 39 with a wire 45; wire 40 with a wire 46; wire 41 with a wire 47; wire 42 with a wire 48; wire 43 with a wire 49. Wire 44 is connected with a stationary contact 50; wire 45 with a stationary contact 51; wire 46 with a stationary contact 52; wire 47 with a stationary contact 53; wire 48 with a stationary contact 54; and wire 49 with a stationary contact 55. These stationary contacts are arranged in radial alinement with respect to a stationary insulating post 56, carried by the bottom 6. The several contacts are also mounted upon this bottom which is preferably formed of insulating material.

The numeral 57 designates a common branch return wire, one end of which is electrically connected with a stationary selecting contact 58, mounted upon the base 6 and insulated thereby. Connected with the wire 38 is a wire 59; with the wire 39 a wire 60, and the wire 40, a wire 61; with the wire 41 a wire 62; with the wire 42 a wire 63; and with the wire 43 a wire 64. The wire 59 is electrically connected with a selecting switch 18′, one terminal of which is connected with a wire 65, connected with a wire 66, which is connected with the common return branch wire 57. The wire 60 is connected with a selecting switch 19′, one terminal of which is connected with a wire 67, connected with a wire 68, connected with the wire 57. The wire 61 is electrically connected with a selecting switch 20′, one terminal of which is connected with a wire 69, being connected with a wire 70, which is connected with the wire 57. The wire 62 is electrically connected with a selecting switch 21′, one terminal of which is electrically connected with the wire 66. The wire 63 is electrically connected with a selecting switch 22′, one terminal of which is electrically connected with the wire 68. The wire 64 is electrically connected with a selecting switch 23′, one terminal of which is electrically connected with the wire 70.

The numeral 71 designates a single controlling switch element or blade, which is pivotally mounted upon the post 56, as shown at 72. As previously stated, the stationary contacts 50 to 55 inclusive are arranged in radial alinement with respect to the post 56, and hence the contact element or blade 71 may be swung to a position to simultaneously engage all of these contacts. This contact element may also be swung to an intermediate position, to engage the contact 58 or to the inactive position, as indicated in dotted lines in Figure 4, where it is out of engagement with all contacts. The wire 26 is electrically connected with the pivoted end of a contact element or blade 71. This contact element or blade is provided with an insulating handle 73.

The operation of the apparatus is as follows:

The contact element or blade 71 may be shifted to the inactive position to the left, as shown in Figures 1 and 4. The general switch 31 is now closed. The electric lamp 24 is glowing. Assuming that it is desired to light the lamp 23, for a suitable number of seconds, prior to the lighting of all of the lamps, the selecting switch 23′ will be closed. The photographic negative is now placed upon the glass 10 and the platen 12 moved to the closed position to engage therewith. The operator will now swing the single control contact element or blade 71 to the intermediate position so that it will engage the contact 58. This will close a circuit to cause the lamp 23 alone to glow. In this closed circuit, current will flow through the wire 25, through wire 29 and its general switch 31, wire 37, lamp 23, wire 64, selecting switch 23′, wire 70, wire 57, contact 58, blade 71, and back to the wire 26. The other selecting switches being open, the other lamps cannot now glow. The blade 71 may be held in this intermediate position for any suitable length of time, such as for ten seconds. At the end of this time, the blade is moved in the same direction, namely, to the right, until it simultaneously engages all of the contacts 50 to 55 inclusive. This will cause all of the lamps to simultaneously glow, irrespective of the condition of other selecting switches. As an illustration of this, the closed circuit for the lamp 18 may be considered. Current will flow through the wire 25, through a part of the wire 29 and the switch 31, wire 32, lamp 18, wire 38, and through wire 44 to the contact 50, and then through the contact blade 71 to the wire 26. The circuit for each of the remaining lamps may be readily traced in a similar manner.

It is thus seen that the selecting switches enable any selected light or lights to be employed when the contact blade 71 is shifted into engagement with the contact 58, and the other circuits are such that all of the lamps will simultaneously glow when the blade 71 is shifted to the right to engage the

remaining contacts. It is thus seen that by the manipulation of a single element, and preferably in the same direction, these two operations may be performed in a highly convenient and expeditious manner. It is also apparent that by opening all of the selecting switches, the lights will not glow when the contact blade 71 is moved across the contact 58, but all of these lights will glow when the blade engages the stationary contacts 50 to 55 inclusive. The blade 71 may therefore be used for turning on all of the lights simultaneously, when it is not necessary to previously treat any portion of the print paper with light, prior to the general application of light to the entire surface thereof.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of my invention, or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A photographic printing apparatus, comprising a casing having a light penetrable support for receiving the photographic negative thereon, a plurality of electric lamps arranged within the casing in spaced relation, and means including a single switch element adapted when moved to one position to cause a selected lamp or lamps to glow and when shifted to another position to cause all of the lamps to simultaneously glow.

2. A photographic printing apparatus, comprising a casing having a light penetrable support for receiving the photographic negative, a plurality of electric lamps arranged within the casing in spaced relation, selecting switches associated with the electric lamps, and means including a single switch element adapted to be shifted to one position to cause the selected lamp or lamps to glow when its selected switch is closed and to cause all of the lamps to glow when shifted to another position independently of the condition of the selecting switches.

3. A photographic printing apparatus, comprising a casing having a light penetrable support for receiving the photographic negative thereon, a plurality of electric lamps arranged within the casing in spaced relation, circuits connected with the lamps, selecting switches connected in certain of the circuits for causing corresponding lamps to glow when they are closed when the circuits are otherwise completed, a control switch element, a stationary contact associated with the selecting circuits and serving to completely close the same when engaged by the control contact element and the selecting switches are closed, and a plurality of contacts connected with circuits having connection with the lamps which circuits are independent of the selecting circuits and are adapted to be completely closed when the control switch element engages with said plurality of contacts.

4. A photographic printing apparatus, comprising a casing having a light penetrable support for receiving the photographic negative thereon, a plurality of electric lamps arranged within the casing in spaced relation, selecting means associated with the electric lamps for determining which lamp or lamps shall glow, and means to cause the selected lamp or lamps to glow and to also cause all of said lamps to simultaneously glow, the action of the last named means in causing all of said lamps to simultaneously glow being independent of the selecting means.

In testimony whereof I affix my signature.

JERVIS C. DEANE.