Feb. 17, 1942. F. W. KIDDER 2,273,360

LIGHT PENCIL

Filed Jan. 29, 1940

Fig. 2

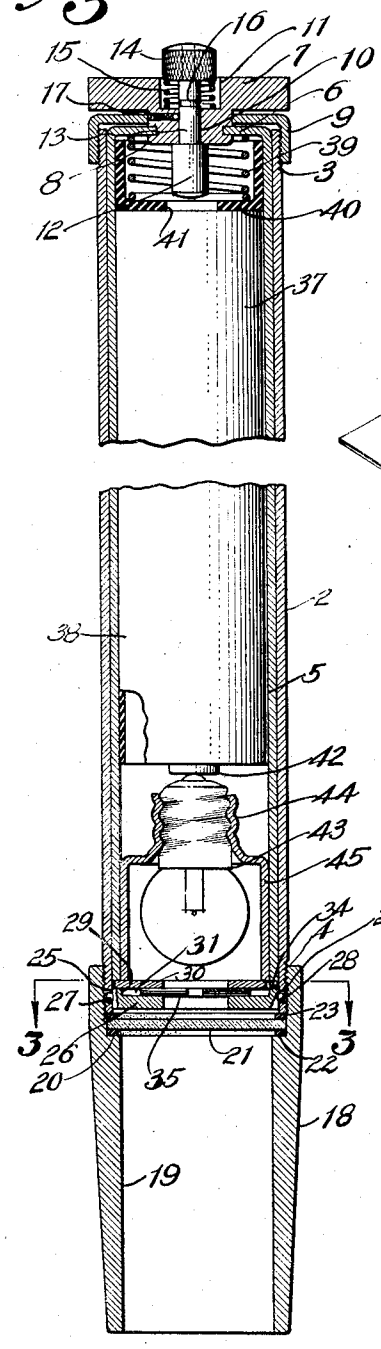
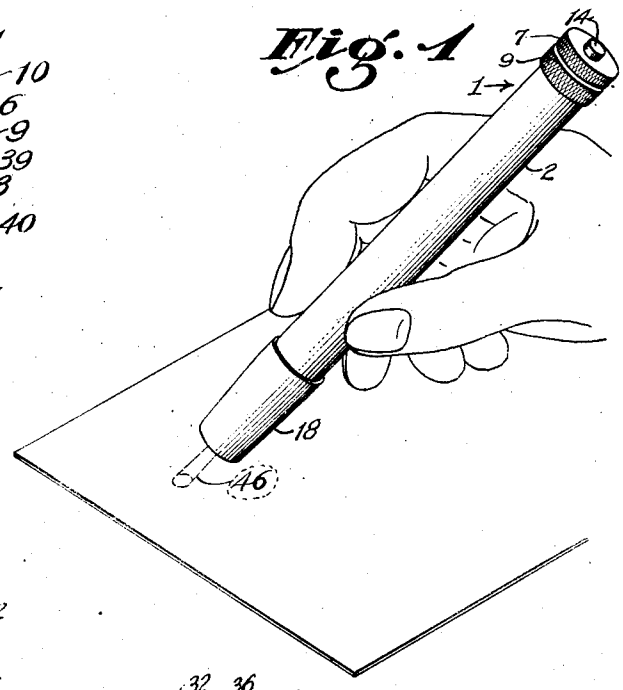


Fig. 1



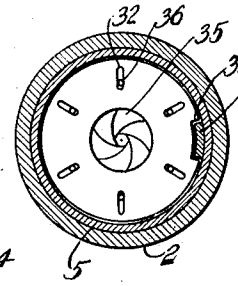


Fig. 3

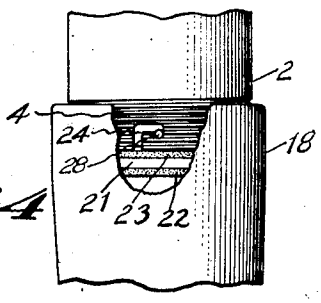


Fig. 4

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LIGHT PENCIL

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5 Claims. (Cl. 95—1.1)

This invention relates to light pencils, and has for an object the provision of a device which is useful in the correction of negatives or unprinted positives by hand in such a way as to modify the relative printing values of certain areas of an image. The invention is particularly adaptable for X-ray use where X-ray plates have been made of given areas of the human body, such as bone fractures, and it is desired to render visible more detail than is readily discernible by inspection of the negative or unprinted positive.

A further object of the invention is the provision of a device adapted to be manipulated by hand, and which is so constructed that it can be used in a solution.

The term "working up" as used in photography includes any method of correcting negatives or unprinted positives to overcome faults or to improve the rendering, reducing the contrast, to obtain details of the image, or to subdue too pronounced details.

Further objects include a device which is simple of structure, easy to handle, and produces superior results.

Other objects of the invention will appear as the invention is detailed, and with the above set forth objects in view, the invention consists in the novel and useful provision, formation, construction, association, and relative arrangement of parts, members and features, all as shown in a certain embodiment in the accompanying drawing, described generally, and more particularly pointed out in the claims.

In the drawing:

Figure 1 is a perspective view of the improved light pencil in position of use,

Figure 2 is a longitudinal sectional view of the light pencil,

Figure 3 is a sectional view on the line 3—3 of Figure 2, and

Figure 4 is a fragmentary detail of certain portions of the light pencil.

Referring now with particularity to the drawing, the improved light pencil is designated as an entirety and in one embodiment by 1, and the same includes an elongated tubular housing or casing 2, screw-threaded at both ends as shown at 3 and 4. Concentric within the casing or body 2 is a tubing 5, one end being annularly inturned or flanged, as shown at 6. A knurled knob 7 having a shank portion 8 is secured to the part 6 so that turning of the knob produces rotation of the tube 5 relative to the tubular housing or casing 2. The construction is such that the parts are readily held in assemblage through the medium of a cap nut 9 in threaded engagement with the threads 3. This cap nut surrounds the shank 8. The knurled knob 7 is formed with central concentric bores 10 and 11, the bore 11 being the one of greatest diameter, and a contact member 12 has its stem 13 passed through both bores 10 and 11, terminating in a knurled head 14. Within the bore 11 and surrounding the stem 13 is a coil spring 15 normally urging the contact member in one direction, to-wit, outwardly. The stem is formed with an annular groove 16 and a spring-pressed detent 17 in the shank of the knurled knob may be received within said annular groove when the stem is moved inwardly of said knob.

The tubular housing 2 has secured to the threads 4 thereof a tip 18. The outer surface of the tip is conical in part whereas the central bore 19 is substantially of uniform diameter. The tip is shouldered at 20. A glass disc 21 having annular gaskets positioned on opposite sides thereof, as shown at 22 and 23, is positioned within the tip and rests upon the shoulder 20.

The tubular housing or casing 2 is formed with a pair of diametrically positioned bayonet slots 24 and 25. An annular plate 26 provided with diametrically disposed pins 27 and 28 is adapted to have the pins thereof received within said bayonet slots for locking the said plate in position. This plate is provided with an annular flange 29 and an annular disc 30 may rest upon the top surface of said flange 29 so as to provide as between the plates 26 and 30 an annular space 31. The plate 30 is formed with a series of radial grooves 32 and with a rim notch 33. The tube 5 is provided with a depending portion 34 for reception in said notch 33. Interposed in the space 31 is an iris, designated generally as 35, and the leaves of the iris are provided with pins designated generally as 36, which pins are positioned in the said radial slots 32, see Figure 3. Adapted for placement within the confines of the tube 5 are one or more dry cell batteries 37. As is customary, the negative terminal of the dry cell battery is surrounded with a paper covering 38. Normally urging the cells in one direction is a coil spring 39 interposed between the flange 6 and an insulation 40 adapted to bear against the base of one of the cells. This insulation is provided with a central opening 41 whereby the contact 12 may engage the base of the cell. The positive terminal 42 of one of the cells is positioned so as to engage a terminal of an electric bulb 43. This electric bulb is held within a screw socket 44 of a member 45. This member 45 con-

stitutes a small casing adapted to have a portion surrounding the glass element of the bulb.

The assemblage of the device is undoubtedly clear from the description as given. By separating the tip 18 from threaded engagement with the tubular housing, it is evident that the glass disc 21 will remain within the tip and that the members 26, 30 and 35 may be removed by rotating the plate 26 so that the pins are released from the bayonet slots 24 and 25, whereupon the member 45 may be removed from within the tube 5 which, of course, allows the batteries to be removed from the tube 5. When the parts are in assemblage, as shown in Figure 2, the iris is readily manipulated by holding the tubular housing 2 with one hand while turning the knurled knob 7 with the fingers of the other hand. It will be observed that the knurled knob is directly connected through the medium of its shank with the tube 5 and that this tube 5 has a portion 34 thereof received within the notch 33. Hence, rotation of the tube 5 produces rotation of the disc 30 and causes the pins 36 to move within the confines of the radial slots 32 Hence, the iris is actuated so as to open or close the same any desired amount.

The operation, uses and advantages of the invention are as follows:

If it is desired to "work up" a negative or unprinted positive, the finger may depress the contact 12 so as to permit the detent to enter the groove 16 and hold the contact against the base of the battery. When this occurs, an electrical circuit will be completed to the terminals of the electric light bulb. Light from said bulb will pass through the opening of the iris and the glass plate 21 and outwardly through the tip as, for instance, indicated by the dotted lines of Figure 1 at 46. The size of the beam is readily regulated by rotation of the knurled knob 7 which will enlarge or close the iris opening as desired. By pulling upwardly upon the member 14, contact with the dry cell is broken. As the glass member 21 is surrounded on both sides by gaskets, it is evident that the device is fluid tight and the same may be utilized within a solution. This is important at times in the proper development of X-ray plates when it is desired to produce contrast or reduce contrast in certain areas. In any event, the device readily allows a "working up" of the negative or unprinted positive.

To those skilled in the art, a device such as described is of value. The size of the beam of light is readily controlled by operating the iris and for this reason, the external diameter of the tip 18 is maintained substantially uniform.

It is evident that the light emitted is actinic.

I claim:

1. A device of the character described including a tubular casing, a tube substantially coextensive in length with the casing and adapted to contain a battery, said tube being rotatably mounted within the casing and having an operating member projecting from the rear end thereof, a source of light within the tube, an iris forwardly of said light, an annular control plate operatively connected with the iris and having a peripheral notch, and a depending portion on the end of said tube received in said notch.

2. A device of the character described including a tubular casing, a tube substantially coextensive in length with the casing and adapted to contain a battery, said tube being rotatably mounted within the casing and having an operating member projecting from the rear end thereof, a source of light within the tube, a removable annular plate normally closing the forward end of the casing, a removable annular control plate normally closing the forward end of the tube and being rotatable therewith, an iris disposed between said annular plates and operatively connected with said control plate for the opening and closing of the iris, a tubular tip threaded on the forward end of the casing and having an internal shoulder, a lens having a marginal portion disposed between said shoulder and the forward end of the casing, and annular gaskets on opposite sides of the lens and respectively in sealing engagement with said shoulder and the forward end of the casing.

3. A device of the character described including a tubular casing, a tube substantially coextensive in length with the casing and adapted to contain a battery, said tube being rotatably mounted within the casing, a source of light within the tube, an annular plate extending across the forward end of the casing, an annular control plate extending across the forward end of the tube and being rotatable therewith, an iris disposed between said annular plates and operatively connected with said control plate for the opening and closing of the iris, a tubular tip threaded on the forward end of the casing and having an internal shoulder, a lens having a marginal portion disposed between said shoulder and the forward end of the casing, and annular gaskets on opposite sides of the lens and respectively in sealing engagement with said shoulder and the forward end of the casing.

4. A device of the character described including a tubular casing, a tube substantially coextensive in length with the casing and adapted to contain a battery, said tube being rotatably mounted within the casing, a source of light within the tube, an annular plate positioned in the forward end of the casing, an annular control plate positioned in the forward end of the tube and being rotatable therewith, an iris disposed between said annular plates and operatively connected with said control plate for the opening and closing of the iris, and a fluid tight lens closing the forward end of the casing.

5. A light pencil including a tubular casing, a tube substantially coextensive in length with the casing and adapted to contain a battery, said tube being rotatably mounted within the casing and having an operating member projecting from the rear end thereof, a source of light within said tube, and an iris adjacent the forward end of the tube and forwardly of said source of light and controlled as to opening and closing thereof by rotation of said tube.

FRANK W. KIDDER.