Oct. 5, 1926. 1,602,347

A. EUSTACE

X-RAY READING BOX

Filed Nov. 18, 1925

Fig. 1.

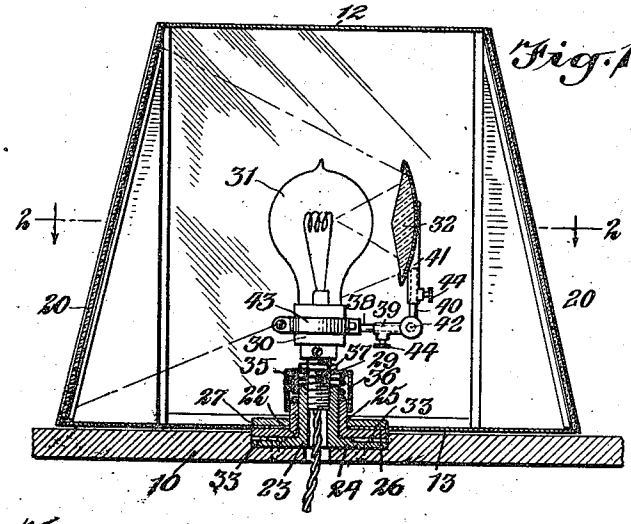


Fig. 2.

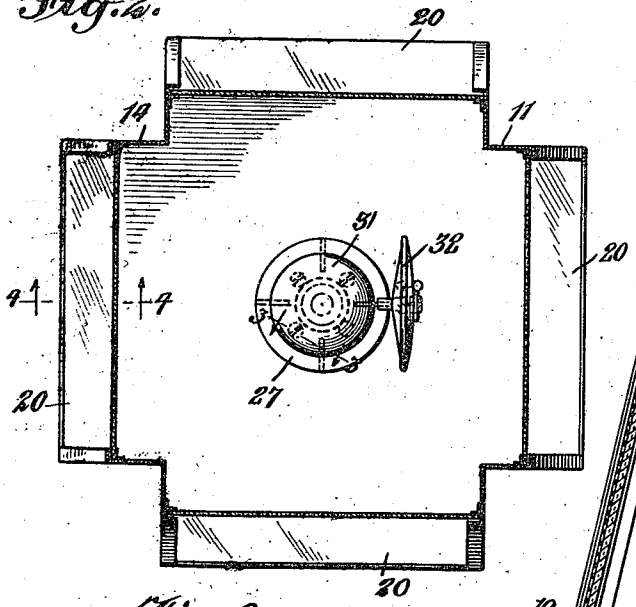


Fig. 6.

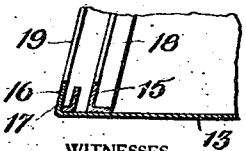


Fig. 3.

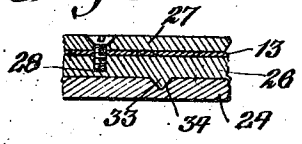


Fig. 4.

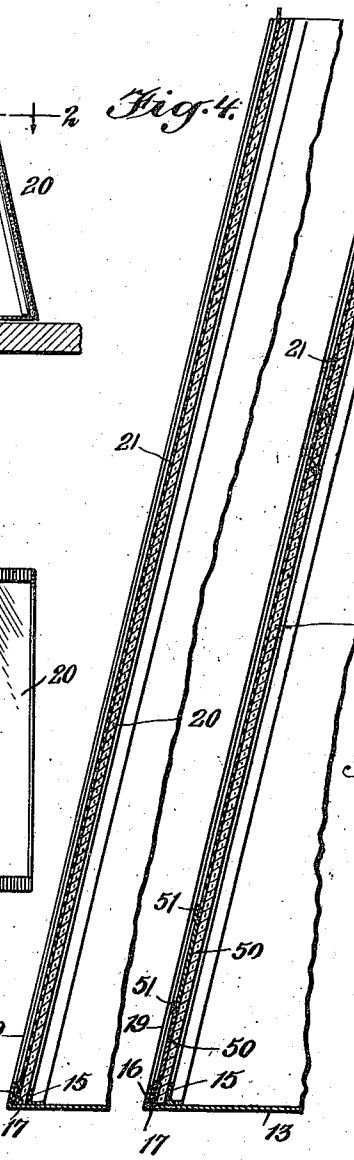


Fig. 5.

WITNESSES

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Patented Oct. 5, 1926.

1,602,347

UNITED STATES PATENT OFFICE.

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X-RAY READING BOX.

Application filed November 18, 1925. Serial No. 69,902.

This invention relates to an improvement in devices for facilitating the reading of X-ray pictures by the casting of light rays or reflections therethrough. Heretofore such devices have been of a rather crude nature consisting generally of a box or enclosure having a single window opening in which a transpicuous panel is mounted and over which the X-ray picture is arranged, together with a suitable illuminating means within the enclosure for casting light rays through the panel to read the picture. It is thus obvious that when occasion arises for comparing a plurality of pictures either of the same size or of different sizes, a number of reading boxes of this character must be employed or else the pictures must be successively positioned over the window opening.

Primarily the invention comprehends as an improvement over the common forms of reading boxes, a reading box having a plurality of window openings.

As a further object, the invention comprehends a reading box having a plurality of window openings and means co-operating with the window openings to accommodate X-ray pictures of different dimensions.

As a still further object the invention resides in the provision of a reading box including a casing having a plurality of window openings, an illuminating means with a reflecting device for directing the light rays in a given direction, and means of connection between the illuminating means and window openings to permit of relative movement therebetween, whereby the reflected light rays may be selectively directed against the window openings as desired.

More specifically, the invention comprehends means for maintaining the relative adjusted positions of the illuminating means and the casing, and means for varying the position of the reflector and illuminating means to focus the beam of light reflected in accordance with the size or dimension of the X-ray pictures in the various window openings.

The invention aims as a still further object to provide an X-ray reading box of greater efficiency than those heretofore produced which does not materially add to the expense of manufacture, and which is comparatively simple in its construction and highly efficient in its purpose.

With the above recited and other objects in view, reference is had to the following specification and accompanying drawings in which there is exhibited one example or embodiment of the invention which is in no way intended as a limitation upon the scope of the appended claims as it is to be clearly understood that variations and modifications which properly fall within the scope of said claims may be resorted to when found expedient.

In the drawings—

Figure 1 is a vertical sectional view through an X-ray reading box constructed in accordance with the invention;

Fig. 2 is a horizontal sectional view thereof taken approximately on the line 2—2 of Fig. 1;

Fig 3 is a fragmentary detail sectional view taken approximately on the line indicated at 3—3 in Fig. 2;

Fig. 4 is a fragmentary vertical sectional view taken approximately on the line 4—4 of Fig. 2, indicating the use of a maximum sized X-ray picture;

Fig. 5 is a similar view illustrating the adapter device employed for facilitating the reading of X-ray pictures of different sizes;

Fig. 6 is a fragmentary detail sectional view of the casing with the transpicuous panel removed.

Referring to the drawings by characters of reference, 10 designates a suitable base or support for the box or casing indicated generally by the reference character 11, which box or casing includes closed top and bottom walls 12 and 13, connected by side walls 14 defining window openings having inner, outer and intermediate spaced lower horizontal rims or flanges 15, 16 and 17 and inner and outer marginal vertical rims or flanges 18 and 19. The rims or flanges 18 and 19 incline inwardly and upwardly, and a ground glass or other transpicious panel 20 has its lower edge at each window opening arranged between the bottom rims or flanges 15 and 17, the major portion of said panel resting against the inner flange 18. This affords a space between each panel 20 and the outer flange 19 for the reception of the X-ray pictures 21.

The casing or box 11 is supported from the base 10 for relative rotation by means of a bearing element 22 on the box or casing mounted over a bearing stud 23 projecting

upwardly from the base, said bearing stud being of tubular formation and provided with an annular flange 24 at its lower end secured or anchored by fastening elements to the base 10. The bearing element 22 preferably consists of a vertical sleeve portion 25 having an annular flange 26 at its lower end underlying the bottom wall 13 of the casing with the vertical sleeve portion 25 extending upwardly through an opening centrally of the bottom wall 13. A clamping washer 27 fits over the sleeve portion 25, overlies the bottom wall 13 adjacent the central opening therein, and is secured to the bottom wall and the flange 26 by screws or other fastening devices 28. The upper end of the tubular bearing stud 23 is interiorly threaded and receives the threaded nipple 29 of a lamp socket 30. The lamp socket 30 is adapted to receive an electric lamp 31 and is also adapted to support a reflector 32 for reflecting and projecting light rays from the lamp in a given direction to cast light reflections through the panel and X-ray picture which is brought into the path of the reflected light rays from the lamp by turning of the casing or box 11, it, of course, being understood that the lamp and reflector are maintained and supported in stationary relation to the base 10.

In order to insure proper registry of each paneled window opening with the reflected light rays and to maintain the casing or box against accidental turning movement, radially disposed ribs and grooves 33 and 34 are provided respectively on the confronting faces of the flanges 24 and 26. Interengagement of the ribs and grooves is effected and maintained by means of a spring 35 interposed between the upper end of the sleeve portion 25 and a covering cap 36 of substantially inverted cup-shaped formation which is adjustably held against the upper end of the spring by a nut 37 threaded on the nipple 29.

The reflector is adjustably supported on the lamp socket 30 by a bracket which includes a horizontal arm consisting of a telescopically adjustable sections 38 and 39 and a vertical arm consisting of telescopically adjustable sections 40 and 41. The section 39 of the horizontal arm is hingedly connected to the section 40 of the vertical arm, as at 42, and the section 38 of the horizontal arm is provided at its free end with a clamp element 43 embracing the lamp socket 30. Set screws 44 are employed for maintaining the telescopically connected sections of the arms in their adjusted relation. Under this arrangement, it is obvious that the reflector may be adjusted with respect to the lamp 31 to properly focus the beam on the transpicuous panels 20, or, if desired, the reflector may be swung downwardly to a non-reflecting position when it is desired to merely illuminate the interior of the casing or box to light all of the transpicuous panels simultaneously.

In order to provide means to adapt the window openings to support films of lesser size or dimension than the transpicuous panel, one or more frames 50 are employed, said frames having the upper edge of the lower rail provided with an offset flange 51 to receive the lower edge of the X-ray picture or the lower edge of the next smaller size adapter frame.

In practice when it is desired to successively read a number of X-ray pictures, the pictures are respectively arranged within the various window openings of the casing and overlying the transpicuous panels 20, said pictures being successively brought into registry with the beam of light reflected from the lamp 31 by turning the casing with respect to the base 10. In instances where it is desired to display all of the pictures simultaneously, the reflector is initially swung downward to an out-of-the-way position.

What is claimed is:

1. An X-ray reading box, including a rotary casing having a plurality of window openings in which the X-ray pictures are adapted to be arranged, a base upon which said casing is mounted for rotation, means attached to the base and extending upwardly through the casing for supporting a lamp, a reflector carried by said supporting means for relative adjustments with respect to the same, whereby to focus the light rays reflected thereby, and adapter means insertable within the window openings for supporting X-ray pictures of various sizes for comparative reading of the same upon rotation of the casing.

2. An X-ray reading box, including a base, a bearing stud projecting upwardly therefrom, a casing having a plurality of window openings in which the X-ray pictures are adapted to be arranged, a bearing element adapted to fit over said bearing stud for rotatably mounting the casing on the case, illuminating and reflecting means carried by said stud for projecting a light beam in a given direction, whereby upon rotation of the casing the several window openings therein will be brought into registry with the reflected light beam, and interengageable means on the bearing stud and bearing element for maintaining the casing in relatively rotated relation to the base.

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