July 14, 1925. 1,545,674

G. A. MacKAY

PROJECTION APPARATUS

Filed July 9, 1923

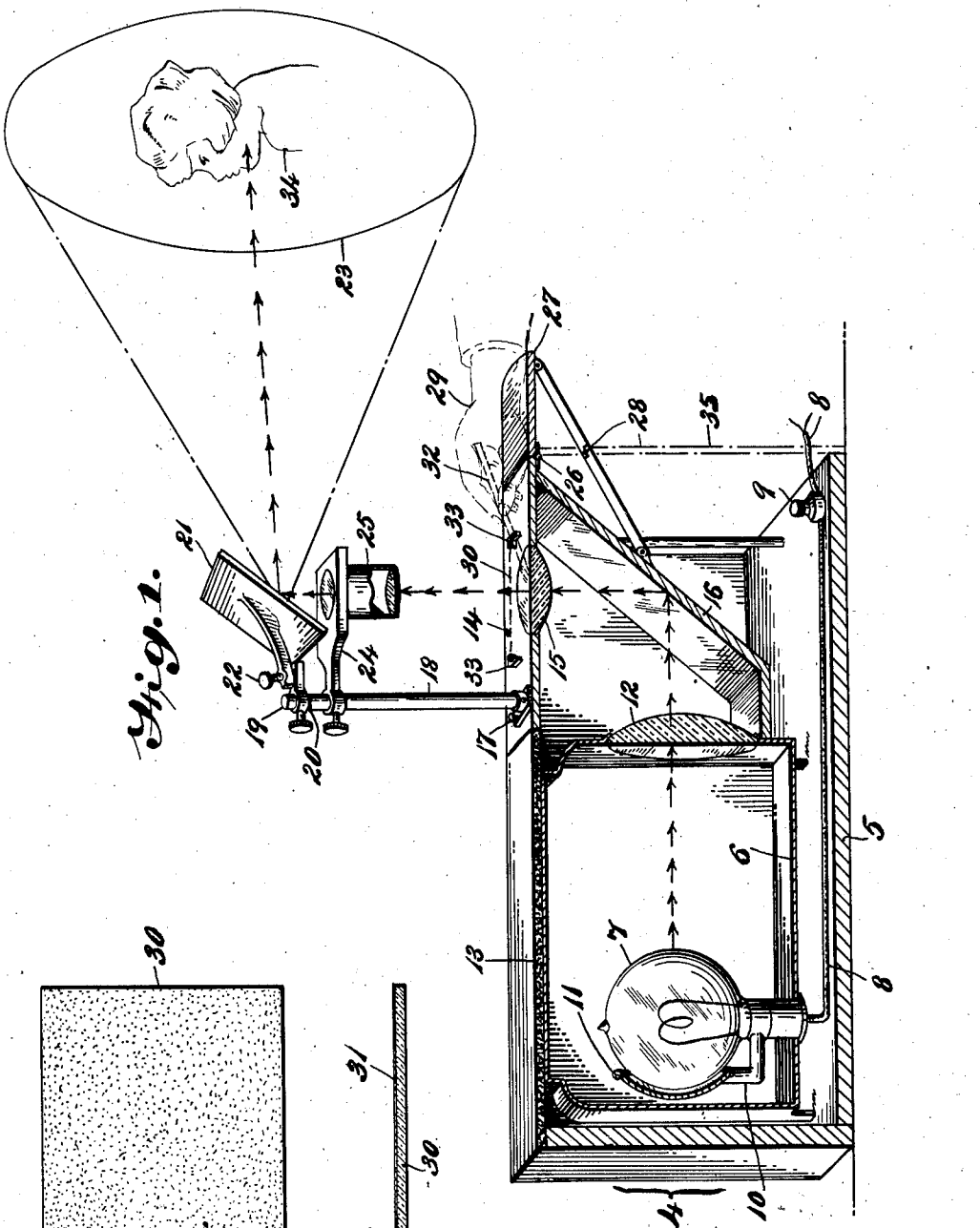


Fig. 1.

Fig. 2.

Fig. 3.

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PROJECTION APPARATUS.

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To all whom it may concern:

Be it known that I, GEORGE A. MacKAY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Projection Apparatus, of which the following is a specification.

This invention relates to apparatus for the projection of pictures, drawings and the like onto an illuminated screen during the process of their production, and it has more particular reference to apparatus intended for the ocular entertainment of an audience, while at the same time being instructive and pleasing to onlookers.

Among the object of this invention is to provide a projection apparatus of the type referred to by which pictures, drawings, images, caricatures and announcements may be produced and projected onto a darkened or opaque screen in a novel manner, and by a novel means whereby all shadow lines are eliminated and the hand of the operator as well as the drawing instrument employed in producing the picture are entirely obscured. In other words, only the picture or other matter sketched or drawn is viewed during its production on the screen, while the color and shade of said picture or other matter may be varied at the operator's discretion.

Another object of my invention is to provide a projection apparatus characterized by a wide range of adjustment and having means for conveniently supporting the operator's hand in a restful manner, whereby freedom of wrist movement can be resorted to without inconvenience.

Other objects and advantages will be apparent and noted as this description proceeds, while the scope of my invention will be found succinctly defined by the appended claims.

Referring to the drawings which are in illustration of one practical embodiment of this invention;

Fig. 1 is a sectional perspective view of my novel projection apparatus.

Fig. 2 is a detail plan of a pigment coated disk hereinafter fully described; and,

Fig. 3 is a transverse section through the same.

In carrying out my invention, I construct an appropriately configured box or casing 4 of fireproof and light proof material—although wood may be employed,—and sufficiently light in weight to permit of its ready transportation. This box or casing 4 is adapted to house and support on its bottom 5 a closed-in lamp 6 conveniently embodying a removable four-hundred-watt incandescent light 7. Said light 7 is adapted to be supplied with electric current from any convenient source by means of a wire 8 under control of a switch 9 in the well known way. Supported on a bracket 10 at the rear of the light socket is a removable reflector 11, that is adapted to concentrate the light rays emitted by the light 7 to a spot-light lens 12 mounted in the front of the lamp 6.

The aforesaid box or casing 4 in so far as that part housing the lamp 6 is concerned may be open topped, or it may have a covering 13 of heat insulating material while the frontal portion is fitted with a fixed top or platform 14 having fitted therein a removable spot-light lens 15 with its concaved surface downwards, and its flat face flush with the plane or top surface of said platform 14. Transversely of the frontal portion of the box or casing 4 and fitting light proof into the opposed vertical walls thereof I arrange an inclined mirror 16, the plane of which is such as to direct the light rays passing the lens 12 vertically through the spot light lens 15, as clearly indicated by the arrowed line appearing on Fig. 1.

Removably mounted by thumb screws 17 on the top or platform 14 is a tubular standard 18 fitted with a telescopic section 19 having at its upper end an adjustable bracket 20, in turn fitted with a projecting mirror 21 angularly adjustable by means of a thumb screw 22. This mirror 21 serves to project the picture produced above the spot light lens 15 onto a distant screen 23, as later on more fully explained. Vertically adjustable on the tubular standard 18 is a horizontally disposed bracket 24 having an aperture therein fitted with an appropriate projecting-lens tube 25 which is arranged vertically and co-axially above the spot light lens 15.

Conveniently hinged at 26 to the frontal edge of the aforesaid top or platform 14 is a hand rest or flap 27, adapted for angular adjustment relative thereto by an appropriate adjustable linkage 28, or a quadrant and thumb screw, in any of the well known ways.

This hand rest or flap 27, as will be obvious, serves to support the operator's wrist as indicated by the dotted outline 29, and it will be clear the same provides for variable inclination to accommodate different requirements as well as angular manipulation of a sketching or drawing instrument.

In conjunction with the apparatus above described, I employ a flat plate or disk 30, preferably of ruby glass, adapted to be coated on its upper face with a light occluding pigment 31 of a plastic or semiplastic nature, said pigment coated surface serving in use to have the picture, sketch, drawing, caricature, announcement produced therein with a pencil 32, or other suitable instrumentality. This flat plate or disk 30 is adapted to be seated with its uncoated surface in abutment over the spot light lens 14, and it is conveniently held so positioned by clamping angles 33, or the like.

In using the apparatus, the artist or operator draws, sketches or otherwise produces a picture, sketch, announcement, caricature or the like by manipulating the drawing instrument 32 on the pigment coated face 31 of the plate 30, whereupon the concentrated light passing the lens 15 will produce the picture in ruby color on the distant screen 23, an image 34 being indicated by way of example only, whereupon the audience will see said picture as it is being produced line by line. As a result of using an appropriate light occluding pigment, it is to be particularly noted that the picture or image 34 produced will be entirely free from any shadow lines whatsoever, which are so objectionable from an ocular viewpoint with apparatus hitherto employed for analogous and like purposes.

From the foregoing it will be apparent that by making the various parts adjustable, and removable, the entire apparatus may be compactly stored in the box or casing 4 and closed in by an appropriate end cover indicated at 35; or, the hand rest 27 may be of sufficient dimensions to serve a like purpose. The apparatus is extremely useful in the entertainment of an audience, and it may have associated attachments or refinements that will tend to increase its scope and utility but I desire to specially emphasize the use of the pigment coated plate 30 of opaque or colored glass for the purposes set forth.

Various detail changes may be effected without departing from the spirit and scope of my above described and illustrated invention, as more specifically defined by the appended claims, for example I may furnish a collapsible tripod stand for supporting the box or casing 4, and thereby greatly add to its ease and facility of use in cramped places.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A projecting apparatus comprising a casing enclosing a high powered lamp fitted with a concentrating reflector, a lens in spaced relation to said lamp, an inclined mirror and spot-light lens for deflecting the light from the lamp, an adjustable projecting lens removably supported above the spot light lens, an adjustable projecting mirror associated with the projecting lens, a pigment-coated ruby glass plate adapted for clamping abutment on the outer face of the spot light lens, and an adjustable wrist support for the artist while sketching or otherwise operating on said pigment-coated lens.

2. A projecting apparatus comprising a casing enclosing a high powered lamp fitted with a concentrating reflector, a lens in spaced relation to said lamp, an inclined mirror and spot-light lens for deflecting the light from the lamp, an adjustable projecting lens removably supported above the spot light lens, an adjustable projecting mirror associated with the projecting lens, a pigment-coated ruby glass plate adapted for clamping abutment on the outer surface of the spot light lens, an adjustable wrist support for the artist while sketching or otherwise operating on said pigment-coated lens, and means for supporting the aforesaid projecting apparatus.

In testimony whereof I affix my signature this 6th day of July, 1923.

GEORGE A. MacKAY.