Dec. 20, 1932. F. W. BORDEN 1,891,498

ILLUMINATING CABINET

Filed July 31, 1928

Fig. 1.

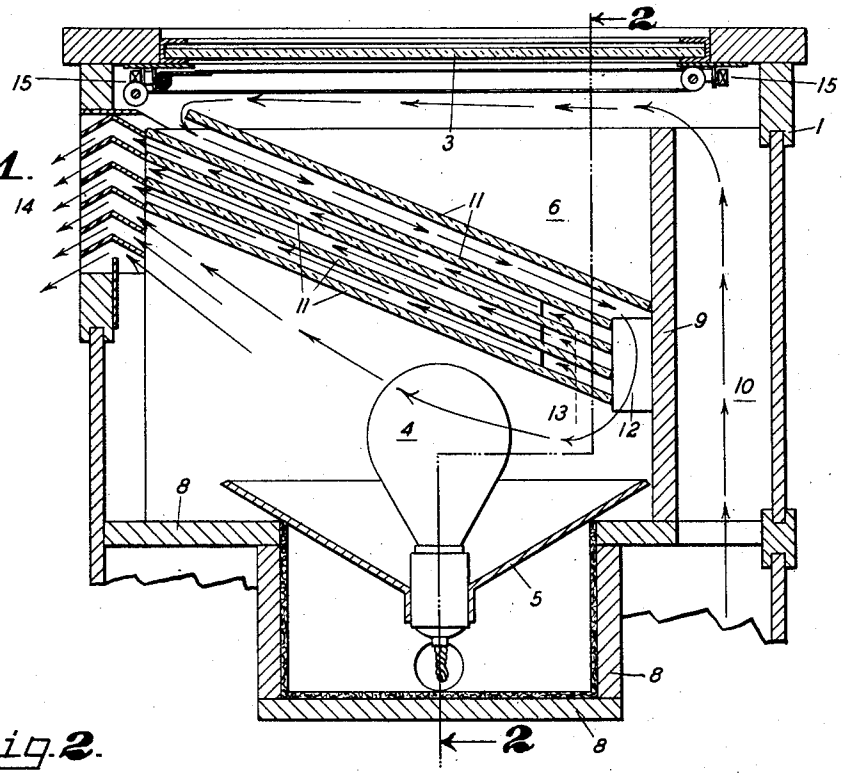
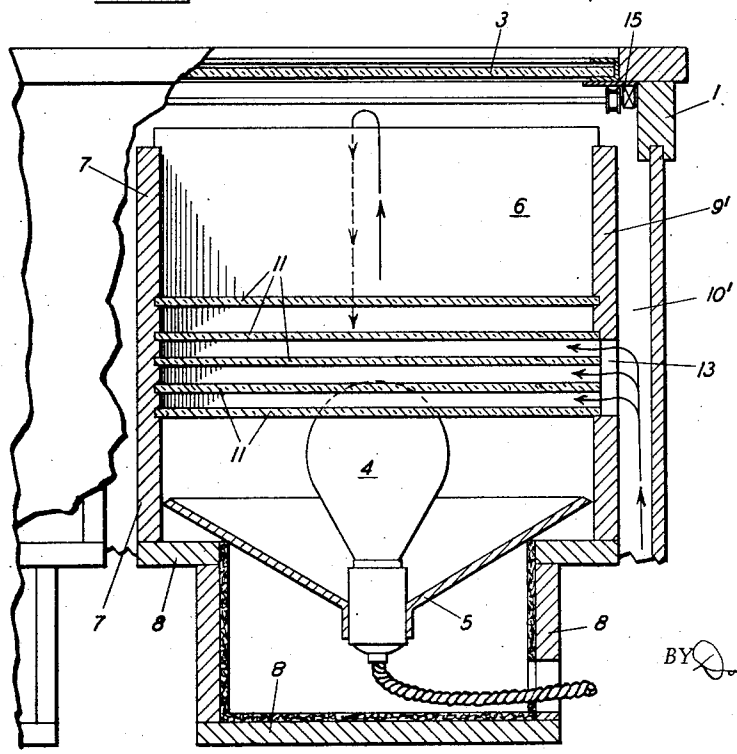


Fig. 2.



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Patented Dec. 20, 1932 1,891,498

UNITED STATES PATENT OFFICE

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ILLUMINATING CABINET

Application filed July 31, 1928. Serial No. 296,529.

This invention relates to improvements in illuminating cabinets, particularly as applied to stereoscopes of the table type.

An object of my invention is to provide an improved illuminating cabinet for viewing X-ray films or the like.

Another object of my invention is to provide an improved illuminating cabinet which is particularly applicable to stereoscopes wherein the films are viewed in a horizontal position.

Another object of my invention is to provide an improved illuminating cabinet for viewing X-ray films wherein is embodied novel means for cooling the interior and particularly the film-supporting surface thereof, whereby the films may be protected from an excessive amount of heat.

Other objects more or less apparent will present themselves or will be specifically pointed out in the description to follow.

In the accompanying drawing:

Figure 1 is a cross sectional view of an illuminating cabinet as applied to a table stereoscope.

Figure 2 is a sectional view of a portion of the cabinet as indicated by the line 2—2 in Figure 1.

Referring to the drawing, the numeral 1 represents a cabinet on which stereoscopic or other viewing means may be mounted. The top of the cabinet is covered partly by two frosted or other suitably constructed sheets of glass 3, through which light rays from within the cabinet may proceed outwardly. Electric light globes 4 which are suitably supported inside reflectors 5 serve as suitable means for sending light rays outwardly through the sheets of glass 3 from within the cabinet. The upper inside part of the cabinet is divided into two light chambers 6 by two slightly separated vertical partitions 7, and each of the chambers is enclosed at its bottom side by a partition member 8. A vertical partition 9, spaced from the front side of the cabinet and secured to the partition members 8 at its lower edge, provides a channel 10 through which quantities of air may proceed upwardly from the lower inside part of the cabinet. Another vertical partition 9′, spaced from the sides of the cabinet and secured to the partition members 8 at its lower edge, provides a channel 10′ through which air may proceed upwardly as in channel 10. The partitions 7 and 9 extend from the partition 8 to points beneath the glass sheets 3. Suitably supported in inclined positions inside each of the chambers 6 and extending from a partition 7 to a side wall of the cabinet, are a number of glass sheets 11, which are so separated one from another as to form a number of passageways for the movement of quantities of air.

The topmost sheet 11 in each chamber extends from the partition 9 to points adjacent but separated from the rear wall of the cabinet, while the other of said sheets in each compartment extend from a tubular box shaped member 12 secured to the partition 9, to the said rear wall of the cabinet. Located in partitions 9′ at points adjacent the outer ends of the tubular box-shaped members 12, are openings 13, which are of sufficient size to allow quantities of air from channel 10′ to enter the chambers 6 at points between the lower sheet 11 and the sheet immediately beneath the topmost of the said sheets. The air so entering the chambers 6 through the openings 13 is guided upwardly between certain of the sheets 11 to certain of the openings 14 located in the rear wall of the cabinet, from whence it passes from the chambers 6. The above described air-cooling apparatus located in the chambers 6 serves as a means for preventing an excessive amount of heat generated by the globe 4 from reaching the sheets of glass 3 upon which X-ray films or the like are positioned for observation purposes. Upon the lighting of the electric globe 4 in each chamber, the air around the same be-

comes heated and passes upwardly beneath the lower of the sheets 11 to certain of the openings 14 from whence it escapes. Because the bottom of each of the chambers 6 is sealed by a partition 8, quantities of cool air are drawn upwardly through the channel 10 and downwardly between the topmost of the sheets 11 and the sheet located directly beneath it, through the box-shaped tubular member 12 and into the lower part of the chamber 6. During the time the air is so circulating through the cabinet, the lowest one of the sheets 11 as well as the sheets above the same, become heated to certain degrees, thereby warming the strata of air located between them. The warmed air located between certain of the sheets proceeds upwardly to the openings 14 from whence it passes from the inside of the cabinet. The upward movement of the air between the sheets 11 causes quantities of cooler air to be drawn through the openings 13 into the space located between certain of the said sheets, thereby causing a circulation of air to be set up for the purpose of maintaining the sheets in a cooled condition.

In order to prevent the passage of light rays through those portions of the glass sheets 3 that are not covered by the X-ray films or the like, I have provided a series of adjustable curtains within the cabinet which may be so manipulated as to allow the light rays from the globe 4 to pass only through those portions of the glass sheets as are covered by the said films. The mechanism for operating these curtains is indicated by the numeral 15.

It is apparent that the light cabinet of my invention may be embodied in various forms, the scope of the invention being defined by the following claims.

Having described my invention, what I claim is:

1. In an illuminating system for stereoscopes and the like comprising a casing having openings in its sides, a source of light located in the casing, a film support located at the top of the casing, and a plurality of separated transparent inclined sheets located in the casing between the source of light and the support, the said sheets being so positioned that air from the openings in the casing may pass between the sheets.

2. In an illuminating system for stereoscopes and the like comprising a casing having openings therein, a transparent support located at the top of the casing, a source of light located in the casing, a plurality of separated sheets located in the casing between the source of light and the transparent support, means for admitting air to the space located between the sheets, and a partition located adjacent a side of the casing whereby an air channel is formed which permits quantities of air to proceed through the casing between the transparent support and the sheets.

3. In an illuminating system for stereoscopes and the like comprising a casing having openings therein, a transparent support located at the top of the casing, a source of light located in the casing, a plurality of separated sheets positioned in inclined directions in the casing, means for admitting quantities of air to the space located between certain of the sheets, means for causing air to circulate above the inclined sheets, and means for allowing the air circulating above the inclined sheets to proceed to the space in the casing beneath the sheets.

4. An illuminating system for stereoscopes and the like comprising a light transmitting support, a light source positioned to direct illumination through said support, a plurality of separated sheets positioned between said light source and said support, means for directing a cooling fluid successively between said sheets and said support and said sheets and said source, and means for supplying a separate current of cooling fluid to the space between said sheets.

5. An illuminating system for stereoscopes and the like comprising a light transmitting support, a light source positioned to direct illumination through said support, a plurality of separated sheets positioned between said light source and said support, means for directing a cooling fluid successively between said sheets and said support, between one of said sheets and the remainder thereof, and between said sheets and said source, and means for directing a separate quantity of cooling fluid between the remainder of said sheets.

6. An illuminating system for stereoscopes and the like comprising a light transmitting support, a light source positioned to direct illumination through said support, a plurality of separated sheets positioned between said light source and said support, means for passing air between certain of said sheets, and means for directing a second current of air between the remainder of said sheets.

7. An illuminating system for stereoscopes and the like comprising a light transmitting support, a light source positioned to direct illumination through said support, a plurality of separated sheets positioned between said light source and said support, means for passing air between certain of said sheets, and means for directing a second current of air between the remainder of said sheets in the opposite direction.

8. An illuminating system for stereoscopes and the like comprising a light transmitting support, a light source positioned to direct illumination through said support, a housing enclosing said light source and having openings in the walls thereof at different levels, and a sheet of transparent material disposed

between said light source and said support and forming a continuous passage between said openings wherethrough cooling air is drawn by the thermo-siphon action.

9. An illuminating system for stereoscopes and the like comprising a housing, a light transmitting support forming one wall of said housing, a light source positioned to direct illumination outward through said support, and a plurality of inclined sheets of transparent material disposed between said source and said support to form a continuous air passage through said housing, said housing being provided with openings at the ends of said passage wherethrough thermo-siphon circulation is induced by heat from said source.

FRED W. BORDEN.