Feb. 28, 1933. C. E. FERREE ET AL 1,899,499

LECTERN LIGHTING UNIT

Filed Oct. 14, 1931 3 Sheets-Sheet 1

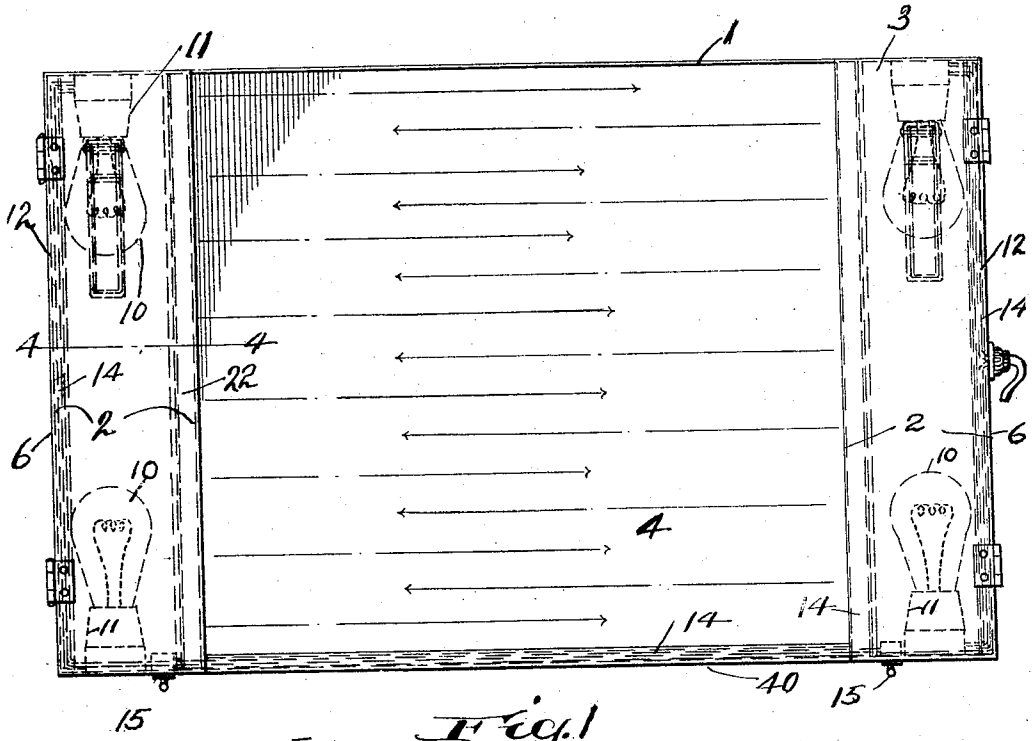


Fig. 1

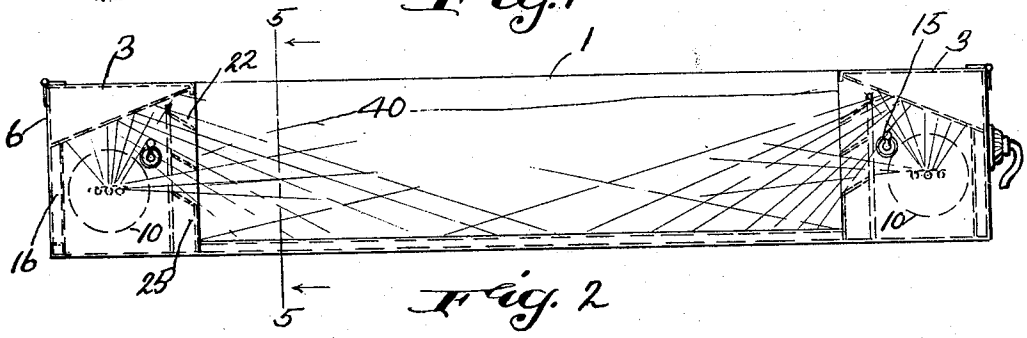


Fig. 2

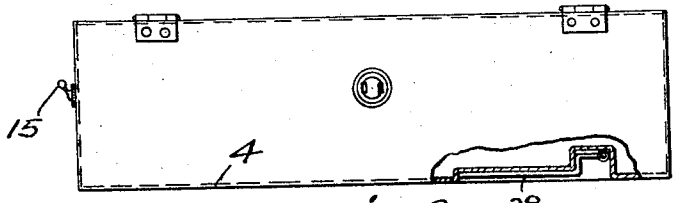


Fig. 3

Inventor

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LECTERN LIGHTING UNIT

Filed Oct. 14, 1931 3 Sheets-Sheet 2

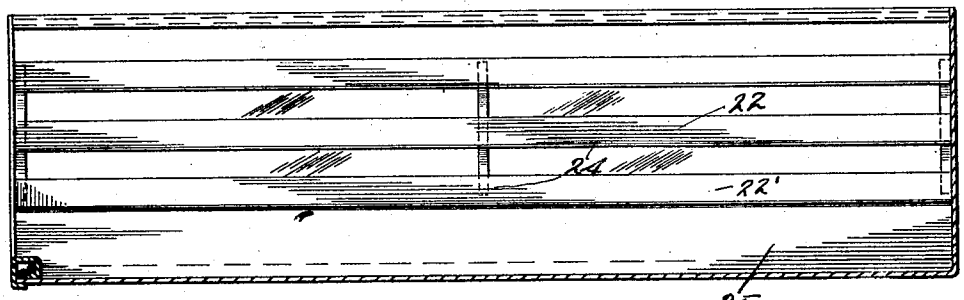


Fig. 5

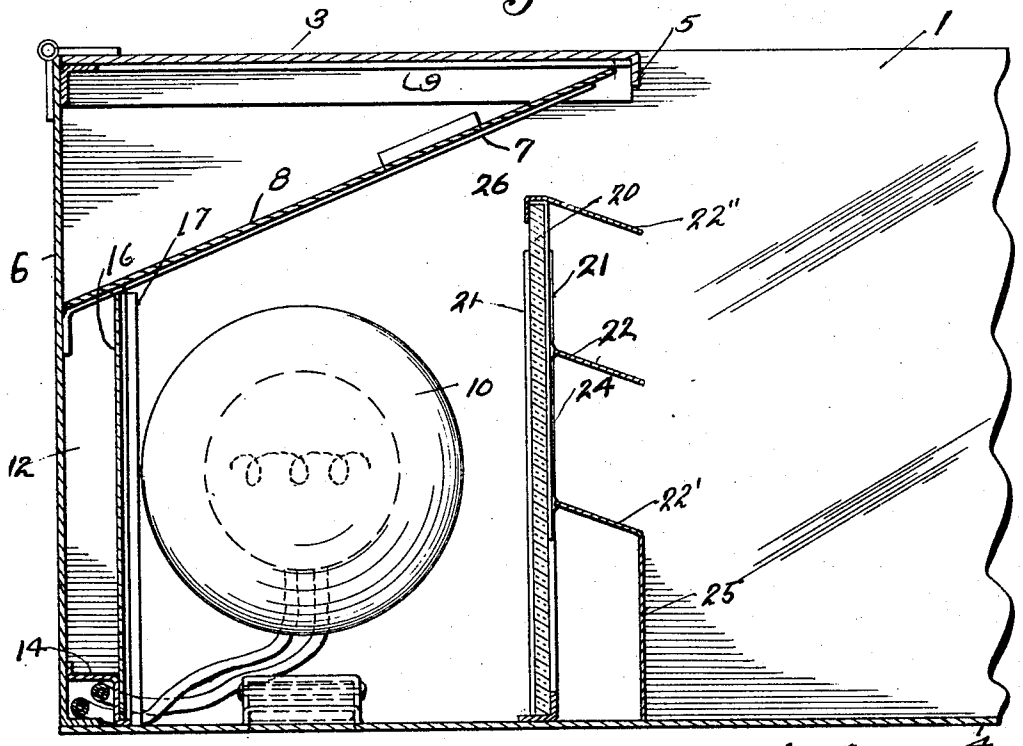


Fig. 4

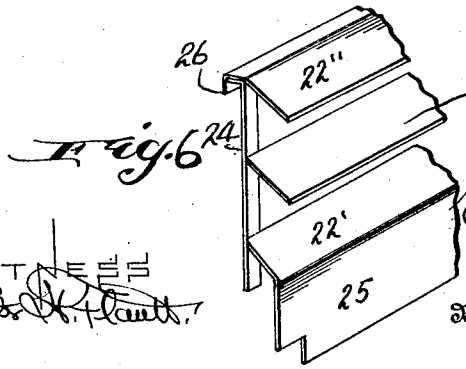


Fig. 6

Witnesses

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LECTERN LIGHTING UNIT

Filed Oct. 14, 1931 3 Sheets-Sheet 3

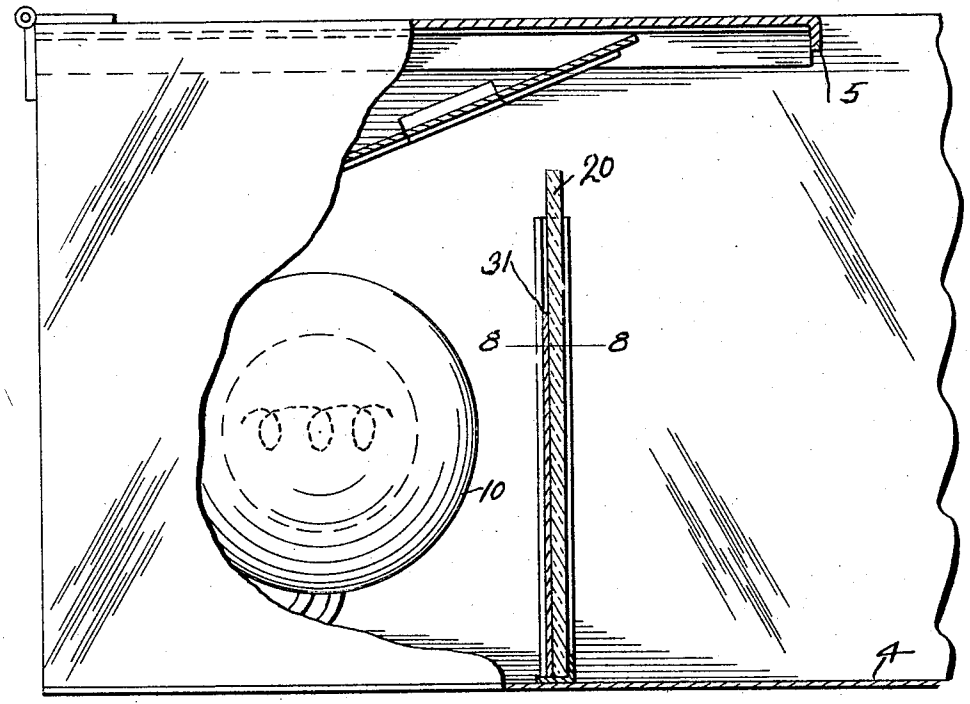


Fig. 7

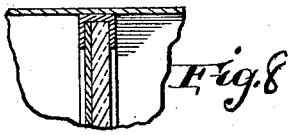


Fig. 8

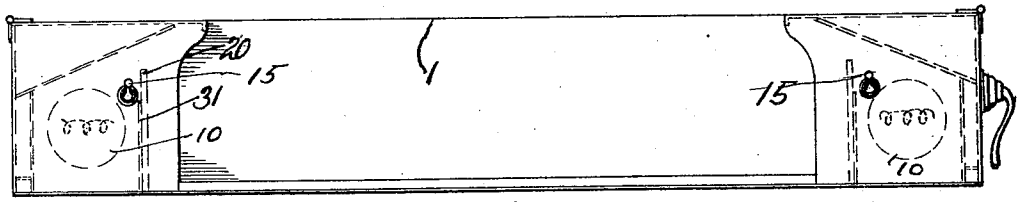


Fig. 9

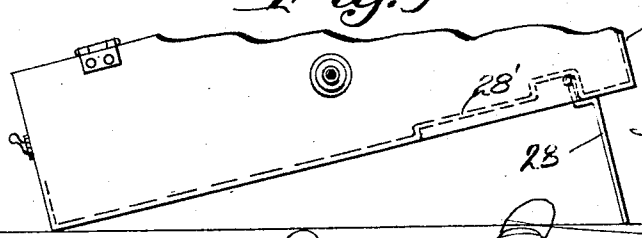


Fig. 10

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Patented Feb. 28, 1933 1,899,499

UNITED STATES PATENT OFFICE

CLARENCE ERROL FERREE AND GERTRUDE RAND FERREE, OF BALTIMORE, MARYLAND

LECTERN LIGHTING UNIT

Application filed October 14, 1931. Serial No. 568,734.

The invention relates to an illuminating device for lecterns, pulpits, speakers' desks and desks for the lecture room in colleges or universities where the pages of note books and other material, as manuscript of relatively considerable area have to be lighted.

Such illumination is useful under any circumstances where printed or typed matter or hand written notes are to be read or referred to by a speaker, and it is of particular advantage or absolutely necessary where the general illumination is dim or completely lacking as in the pulpit and particularly in the delivery of lectures in connection with which lantern slides and moving pictures are shown.

Applicants' device in the form shown herein consists of an enclosure of sheet metal which contains the source of illumination and various diffusing and reflecting means for controlling the light suitably located at the sides of a floor or support on which the reading matter to be illuminated is placed. For more expensive jobs the lighting unit can be housed with wood and built into the lectern or pulpit or speaker's desk, and the device may be as ornamental as desired.

In accordance with the construction shown, the floor of the box and the written matter thereon may be and usually is illuminated from both sides and the brightness of the reading surface is apparently equal at all points. It is further sufficiently intense to permit of the apparatus to be used with two scales of intensity by omitting the illumination at will from either side. This is of particular advantage where lantern slides or other projected illustrations are used in connection with a lecture as the light can be so controlled as to come from the side of the lighting box next to the projection screen, which arrangement contributes to the protection of the screen from stray light, cutting off any rays from the lectern lighting unit which might strike the screen.

By applicants' arrangement of reflectors and diffusing glass and baffles in connection with the box or enclosure, the unit is absolutely glareless to the speaker and to the audience. In addition to the lighting of the book or manuscript being used, the speaker's face is well illuminated with diffused light reflected from the floor of the unit, making it clearly visible to the audience in every part of the room.

The construction is further so arranged that the eyes of the audience in every part of the room are completely shielded from glare by the front wall, or, in case the front wall be omitted, the baffles cooperating with the diffusing plate afford a degree of protection which is ordinarily sufficient. As a means for protecting the eyes of both the speaker and the audience, the unit may be provided either with the baffles referred to or with an opaque shield covering the lower portion of the diffusing glass, thus cutting off the rays which might be reflected upwardly and prove harmful in their effect.

In the accompanying drawings we have illustrated a lectern illuminating unit embodying the features of our invention in the preferred form.

In the drawings:

Figure 1 is a top plan view of the unit.

Figure 2 is a rear elevation.

Figure 3 is a side elevation of the lectern.

Figure 4 is a vertical section on an enlarged scale on the line 4, 4 in Figure 1.

Figure 5 is a vertical section on the line 5, 5 in Figure 2.

Figure 6 is a fragmentary perspective view of one end of the louvers and the support for the same.

Figure 7 is a fragmentary elevation broken away to show a section corresponding to Figure 4 of a modified form of the device.

Figure 8 is a fragmentary horizontal section at one end of the diffusing glass, the same being taken on the line 8, 8 in Figure 7.

Figure 9 is a rear elevation of the modified form, this view corresponding to Figure 2.

Figure 10 is an end elevation corresponding to Figure 3 showing the front of the lectern supported in raised position by the folding legs.

Referring to the drawings by numerals, each of which is used to indicate the same or similar parts in the different figures, the construction shown comprises a suitable en-

closure which preferably is provided with an upright front wall 1, and lighting boxes 2, 2 at the sides and in the present instance the unit enclosure has a floor 4 which with the front wall 1 serves to connect the boxes 2, 2, though these boxes may be mounted separately at the sides of the lectern top or in any suitable way. The unit is preferably open at the rear at 40, see Figures 1 and 2, to give free access by the lecturer to the book or manuscript not shown, which rests on the floor 4 of the unit or on the lectern between the boxes 2, 2 as suggested. The front wall 1 is a desirable feature, as it assures protection for the eyes of the audience in every part of the room.

The lighting boxes 2, 2 at the sides shown in detail in Figure 4, which is on a relatively enlarged scale, are in the preferred form provided each with a cover 3 which may have a depending flange 5 or cut off on the long side toward the center of the unit. This cover is shown as hinged to the top of the corresponding outside wall 6. Beneath the cover the lighting boxes are provided with inclined slide guides or supports 7 for the top reflectors 8 which are preferably removable as by sliding in and out along the guides or supports 7. The enclosure is also provided with a top flange 9 overlying the reflector guides and supports 7. This braces the side of the box and provides a seat for the cover 3.

The source of illumination shown in the form of lighting bulbs 10 is located in the illuminating boxes 2, 2, there being preferably one light bulb at each end of each box. The light sockets 11 are preferably secured to the end walls of the boxes as shown. The bulbs are connected by means of wiring 12, enclosed in conduits or molding 14, shown in the bottom corner of each box, to any suitable source of current, the lights on each side being controlled by a corresponding switch 15 so that the unit may be lighted from either side or from both sides at the will of the operator. The illuminating boxes in the preferred form shown are provided adjacent the outside wall, i. e., between the wall and the light bulbs and preferably spaced away from the wall to provide an air jacket with upright reflectors 16 supported by upright brackets 17 or in any suitable manner, the bottom of the reflector being in the form of the invention shown spaced outwardly from the floor by means of the conduit 14, the air jacket or air space referred to between the wall 6 and the reflector 16, being indicated by reference character 19. These reflectors 16, as well as reflectors 8, are easily removed for polishing and replacement by sliding upwardly. Each box 2 opposite to the reflector 16 and side walls 6, i. e., toward the center of the unit, in the preferred form of the invention shown, is formed of a diffusing glass 20 or a plate of other suitable diffusing material which is supported in upright position by suitable brackets or guides 21 engaging the surface of the same near the end edges.

In the form of the invention shown in Figures 1 to 6, the diffusing glasses are supplemented by baffles 22. These in the form of the invention shown are secured together by means of upright members 24, Figure 6, the bottom louver 22′ also being provided with a depending shield or skirt 25 which may rest on the floor of the unit and the top baffle 22″ of the assembled series is shown as provided with a hook 26 which may extend the full length of the louver, which hook engages the top of the diffusing plate, holding the baffles in position, both surfaces of the baffles are flat black or otherwise of low reflecting power. This applies also to the outer surface of the skirt 25.

The unit may be provided with any suitable type of folding legs 28 shown in folded position in Figure 3. These legs are located beneath or below and in the immediate vicinity of the front wall 1 of the unit, being preferably adapted to fold into sockets 28′ and to hold the unit with the front portion, particularly the front wall, in elevated position, giving a convenient angle to the work or manuscript or book on the floor of the unit which is indicated by reference character 4, and increasing the effectiveness of the protection afforded the eyes of the audience.

In the operation of the unit a large portion of the rays of the light from the bulbs 10 come in contact with the upright reflector 16 and the top reflector 8 which is inclined upwardly toward the center of the unit. The rays from these reflectors are passed through the upper portion of the diffusing glass 20, the lower portion being closed by the shield 25 eliminating the rays which are projected downwardly at sharp angle so that they would be reflected into the eyes causing glare.

The sharply inclined downward rays which might be reflected into the eyes, are cut off and eliminated by the bottom baffle 22′ and the shield 25 depending therefrom, and the upwardly disposed rays, in all instances are cut off by the upper baffles 22″ so that no glare can reach the eyes of the lecturer, but at the same time a flood of light is delivered with the highest grade of efficiency to the work, i. e., the book or manuscript, at the center of the unit where it may be supported on the floor 30.

The illumination, as described with the light coming from both boxes and the arrangement of reflectors diffusing plate and baffles as described, is so highly efficient that when for any reason it is desirable or necessary, as in the delivery of a lecture in connection with lantern slides, to cut off any and all light from one side or the other which might reach the screen, the bulbs on the side remote from the screen may be extinguished

so that all light from the remaining source being projected in one direction, i. e., away from the screen, no light from the unit can reach the screen. In this way the apparatus provides two scales of intensity in addition to a change of direction in which the light is projected.

When the lights in both boxes are in full operation, the illumination over the entire area of the floor of the unit between the boxes is substantially uniform.

It is of particular interest that the unit is absolutely glareless as to the speaker and as to the audience, the latter being protected both by the front wall 1 of the unit and by the baffles. It is also of interest that the sheet metal construction shown is not essential, it being entirely feasible to build the lighting unit as part of the lectern top or attach the lighting boxes thereto in any suitable way with or without the connecting floor and the front wall, though the protection afforded the eyes of the audience by means of the louvers is less efficient than with the front wall in combination therewith.

The alternative form of applicants' construction shown in Figures 7, 8 and 9 differs in that instead of the louvers an opaque plate 31 or opaque surface is provided which extends upwardly from the floor covering a considerable portion of the diffusing glass 20 or otherwise cutting off the downwardly disposed rays which pass therethrough toward the book or manuscript. This serves to cut off all of the rays which are inclined sharply downward and which might be reflected into the eyes of the lecturer, the light which is projected on the book or manuscript being read thus limited to the portion which passes from the reflectors through the top area of the diffusing glass being turned downwardly into contact with the floor of the unit or subject matter to be read by the reflection at an angle which is less sharply inclined from the horizontal so that the reflected rays other than those which are completely diffused do not enter the eyes of the lecturer or the audience. The upwardly inclined rays are cut off by flange 5 in both instances.

The first construction, however, gives a greater amount of light and a better cut off. The baffles are preferable but not absolutely essential to the operativeness of the device. It is also of interest that the various reflectors and diffusing glass in the form shown are easily removable for polishing, resilvering and the like.

The unit of the invention illuminates the reading surface with well diffused uniformly distributed light, and shields the eyes of the speaker from glare in any position in which he may stand. It also shields the eyes of the audience from glare in every part of the room and renders the speaker's face clear to the audience from all points of the room by illuminating it uniformly with well diffused light, and it is further adapted to shield a projection screen or other objects as desired from all stray light.

We have thus described specifically and in detail a lighting unit embodying the features of our invention in the preferred form, the description being specific and in detail in order that the manner of constructing, applying, operating and using the invention may be fully understood, however, the specific terms herein are used descriptively rather than in a limiting sense, the scope of the invention being defined in the claims.

What we claim as new and desire to secure by Letters Patent is:

1. The combination in a lectern lighting unit of a support for the work, a lighting box at each side of the support, said lighting box containing a source of illumination, a reflector above the source of illumination inclined upwardly toward the work support, an upright reflector on the side of the source of illumination away from the work support, an upright diffusing plate on the opposite side of the source of illumination from said latter reflector.

2. The combination in a lectern lighting unit of a support for the work, a lighting box at the side of the support, said lighting box containing a source of illumination, a reflector above the source of illumination inclined upwardly toward the work support, an upright reflector on the side of the source of illumination away from the work support, an upright diffusing plate on the opposite side of the source of illumination from said latter reflector and means for eliminating the upwardly inclined rays.

3. The combination in a lectern lighting unit of a support for the work, a lighting box at the side of the support, said lighting box containing a source of illumination, a reflector above the source of illumination, an upright reflector on the side of the source of illumination away from the work support, an upright diffusing plate on the opposite side of the source of illumination from said latter reflector, and means for eliminating the upwardly inclined rays coming from the reflectors and the source of illumination.

4. The combination in a lectern lighting unit of a support for the work, a lighting box at each side of the support, each lighting box containing a source of illumination, a reflector above the source of illumination inclined upwardly toward the work support, an upright diffusing plate between the source of illumination and said work support, and means for eliminating the upwardly inclined rays from the source of illumination, and means for eliminating the rays which are inclined at a sharp angle downwardly toward the work support and which would be reflected into the eyes of the reader.

5. The combination in a lectern lighting unit of a support for the work, a lighting box at the side of the support, said lighting box containing a source of illumination, a reflector above the source of illumination inclined upwardly toward the work support, an upright diffusing plate between the source of illumination and said work support, baffles for eliminating the upwardly inclined rays from the source of illumination, and means for eliminating the rays which are inclined at a sharp angle downwardly toward the work support and which would be reflected into the eyes of the reader.

6. The combination in a lectern lighting unit of a support for the work, a lighting box at each side of the support, said lighting box containing a source of illumination, a reflector above the source of illumination inclined upwardly toward the work support, an upright diffusing plate between the source of illumination and said work support, and baffles for eliminating the upwardly inclined rays from the source of illumination, and a skirt covering the lower portion of the diffusing plate.

7. The combination in a lectern lighting unit of a support for the work, a lighting box at each side of the support, said lighting box containing a source of illumination, a reflector above the source of illumination inclined upwardly toward the work support, an upright diffusing plate between the source of illumination and said work support, and baffles for eliminating the upwardly inclined rays from the source of illumination, a skirt covering the lower portion of the diffusing plate, and means for supporting the unit whereby it is inclined downwardly from front to rear.

Signed at Baltimore, Maryland, this 13th day of October, 1931.

CLARENCE ERROL FERREE.
GERTRUDE RAND FERREE.