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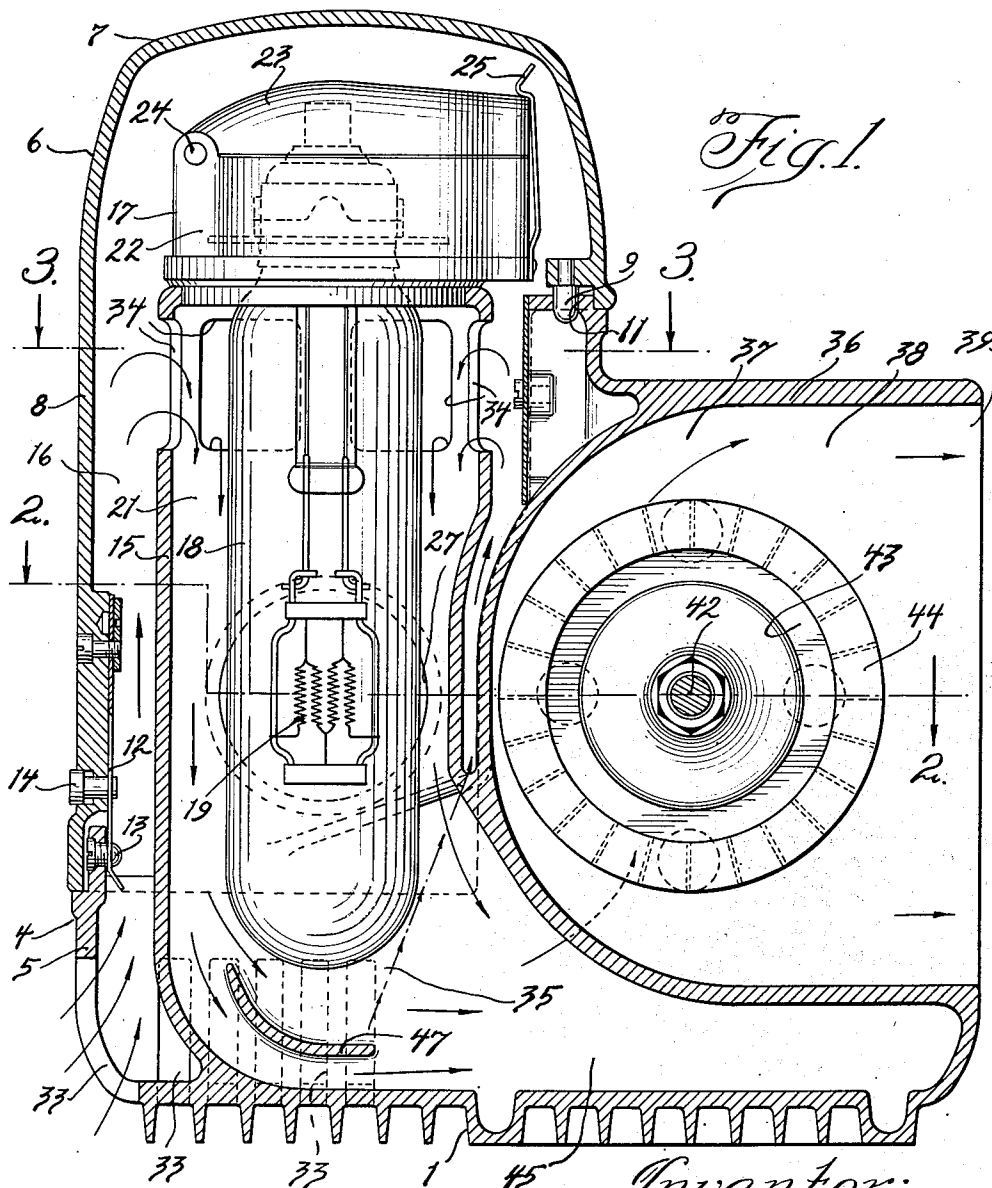
B. STECHBART

2,269,794

VENTILATED LAMP HOUSE

Filed July 17, 1939

2 Sheets-Sheet 1



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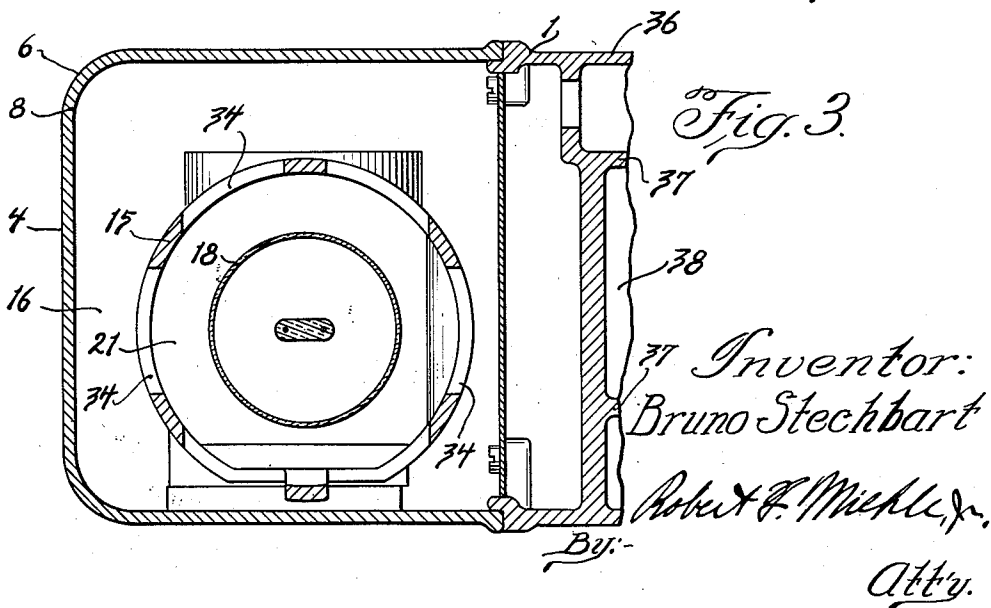
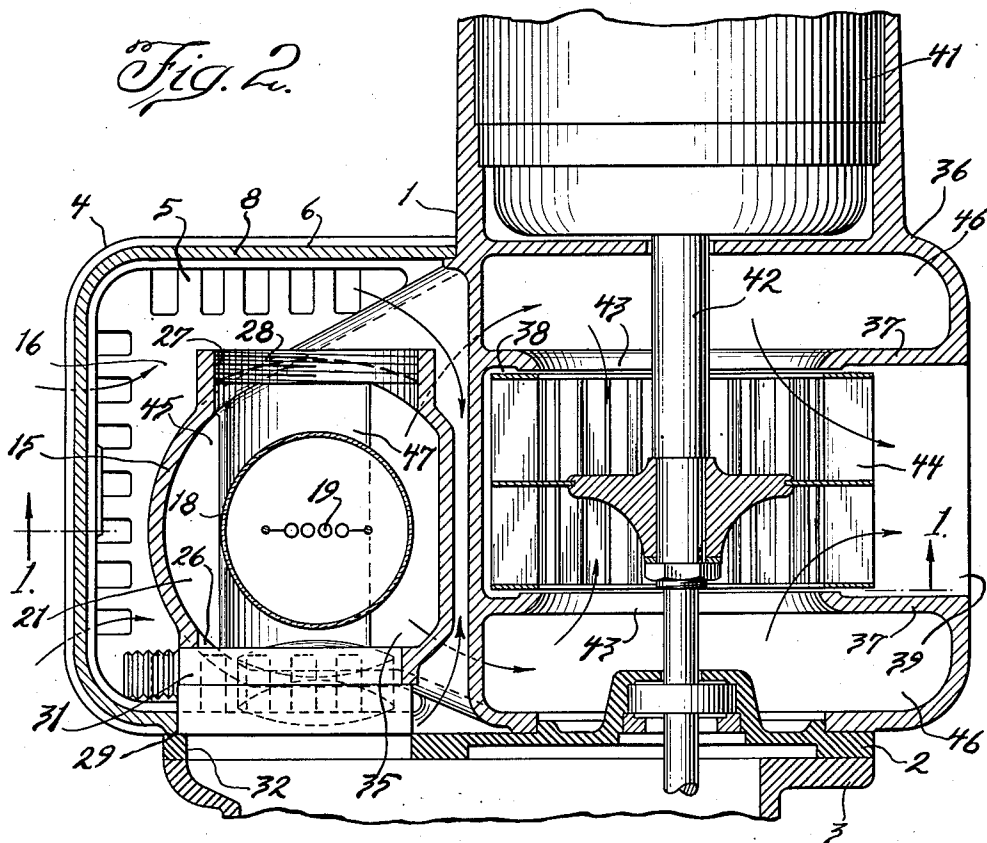
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UNITED STATES PATENT OFFICE

2,269,794

VENTILATED LAMP HOUSE

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Application July 17, 1939, Serial No. 284,890

4 Claims. (Cl. 240—47)

My invention relates particularly to a ventilated lamp house for picture projecting machines and has for its main object the provision of a novel and effective ventilating system for lamp houses, which, while maintaining a lamp at a safe operating temperature, effects a relatively high temperature in the region of the filament of the lamp with a view toward maintained efficiency and longevity of the lamp.

With this object in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said object and certain other objects, hereinafter appearing, are effected all as fully described with reference to the accompanying drawings, and more particularly pointed out in the appended claims.

In the said drawings—

Figure 1 is a vertical sectional view of a picture projecting machine having ventilated lamp house embodying my invention, substantially on the line 1—1 of Figure 2;

Figure 2 is a sectional view of the same substantially on the line 2—2 of Figure 1; and

Figure 3 is a sectional view substantially on the line 3—3 of Figure 1.

Referring to the drawings, 1 designates the main frame of a motion picture projecting machine at the front of which are secured additional frame parts 2 and 3. An elongated vertically disposed outer lamp house enclosure, closed at its upper end and generally designated at 4, is incorporated with the main frame and is formed of an enclosure part 5 formed integrally with the main frame, the frame part 2 and a removable part or cover 6 forming the closed upper end of the enclosure, as designated at 7, and a portion of the side thereof, as designated at 8. The part 6 is removably secured on the enclosure part 5 by studs 9 secured on the part 6 and engaging in apertures 11 in the part 5 and a spring latch 12 engaging a stud 13 on the part 5, the latch 12 being releasable from the stud 13 for removal of the part 6 by means of a push plunger 14 accessible from the exterior of the enclosure, as shown in Figure 1.

A vertically disposed elongated inner enclosure 15 is formed integrally with the main frame and is disposed within the outer enclosure 4 in central relation therewith, and these enclosures provide vent space 16 therebetween surrounding the inner enclosure.

Mounted at the top of the inner enclosure 15 and arranged within the outer enclosure 4, is a lamp mounting generally designated at 17, which

is adapted for removably carrying an incandescent electric lamp 18 extending downwardly in the inner enclosure in central relation therewith, thus providing vent space 21 surrounding the lamp. The lamp is provided with a concentrated filament 19 disposed downwardly therein.

The lamp mounting 17 is fully described in my copending U. S. Application, Serial No. 290,264, filed August 15, 1939, for Lamp mounting, and involves a body 22 secured on the top of the inner enclosure 15 and a movable part 23 hinged on the body 22, as designated at 24, for removal and insertion of the lamp 18 from above, and releasably secured in lamp retaining position by a spring latch 25. See Figure 1.

The intermediate portion of the inner enclosure 15 is provided with diametrically opposite forward and rearward openings 26 and 27 aligned with the lamp filament 19. See Figure 2. A forwardly facing reflector 28 is adjustably screw-threaded into the rearward opening 27 for reflecting light from the lamp filament forwardly. A laterally extending slide mounting 29 is disposed at the forward opening 26, and a condenser lens 31 is removably mounted in the slide mounting 29 for concentrating light from the lamp filament, the frame part 2 being provided with a light opening 32 for the passage of the light from the lamp.

Removal of the part 6, forming the closed upper end of the outer enclosure 4 and a portion of the side thereof, provides convenient access to the lamp mounting for removal and insertion of a lamp and to the reflector 28 and condenser lens 31 for the usual purposes.

The lower end of the outer enclosure 4 is provided with an intake vent opening into the vent space 16 and extended horizontally thereabout in the form of horizontally spaced openings 33. The upper end of the inner enclosure 15 is provided with an intake vent opening from the vent space 16 and extended horizontally thereabout in the form of openings 34 spaced about the inner enclosure. The lower end of the inner enclosure 15 is open to form an outlet vent 35 extended horizontally thereabout.

A hollow formation 36 is formed integrally with the main frame 1 at the side of the outer enclosure 4, and spaced laterally extending vertical partitions 37 within the formation 36 form a blower chamber 38 provided with a lateral outlet vent 39. See Figures 1 and 2.

A motor 41 is mounted rearwardly in the formation 36 and the shaft 42 of the motor extends forwardly through the blower chamber 38 in cen-

tral relation therewith. The partitions 37 are provided with intake openings 43 in central relation with the motor shaft, and a fan 44 of the centrifugal type in the blower chamber 38 is secured on the motor shaft 42 and is driven by the motor to draw air through the intake openings 43 and expel it through the outlet vent 39.

The outlet vent 35 of the inner enclosure 15 merges with a vent passage 45, formed in the main frame 1, which extends horizontally from the vent 35 and then upwardly both forwardly and rearwardly of the blower chamber 38, as designated at 46, and communicating with both of the intake openings 43 of the blower chamber.

Assuming the fan 44 to be driven, air is drawn through the intake openings 33, upwardly in the vent space 16 between the outer and inner lamp house enclosures, through the intake openings 34, downwardly in the vent space 21 about the lamp 18 in the inner enclosure, outwardly from the outlet vent 35, through the vent passage 45, and through the blower intakes 43 into the blower chamber 38 from which the air is expelled from the outlet vent 39 by the fan, as indicated by the arrows in Figures 1 and 2.

As so circulated, the air first absorbs heat in the vent space 16 between the outer and inner lamp house enclosures, after which it enters the inner vent space 21 of the lamp enclosure in the region of the base of the lamp and the lamp mounting 17 remote from the filament 19 of the lamp, and, absorbing further heat in the upper portion of the inner enclosure, passes the filament 19 at a relatively high temperature and out through the outlet vent 35 at the lower end of the inner lamp house enclosure 15. Accordingly, the portion of the lamp in the region of the filament, while maintained at a safe operating temperature, is subject to the circulated air only after it has been heated by absorbing heat in the vent space 16 and in the upper portion of the inner enclosure 15 with the result that the filament portion of the lamp is maintained at a relatively high degree of temperature with resulting maintained efficiency and longevity of the lamp, it being particularly noted that the base portion of the lamp and the lamp mounting are subjected to the circulated air before it attains its maximum heat with the result that they are maintained at a relatively low temperature. The reflector 28 and the condenser lens 31 are also subjected to cooling by the circulated air.

The outer and inner lamp house enclosures and the lamp being arranged in central relation with each other and the intake vents of the outer and inner enclosures and the outlet vent of the inner enclosure being extended horizontally thereabout, the air circulation is generally uniform about the inner enclosure and the lamp with obvious advantages, and a deflector 47, see Figure 1, is associated with the outlet vent 35 to further promote uniformity of circulation.

While I have thus described my invention, I do not wish to be limited to the precise details described as changes may be readily made without departing from the spirit of my invention, but having thus described my invention I claim as new and desire to secure by Letters Patent the following:

1. In a device of the character described, the combination with an elongated outer enclosure closed at one end and including a part movable to open said end, of a similarly disposed elongated inner enclosure therein in central relation

therewith and separate from said movable part and said enclosures providing vent space therebetween, a lamp mounting on said inner enclosure and within said outer enclosure in the region of said closed end for access thereto by means of said movable part and adapted for removably carrying a lamp extending within and longitudinally of said inner enclosure, said outlet enclosure being provided with an intake vent into said vent space in the region of the end thereof opposite said closed end, said inner enclosure being provided with an intake vent from said vent space in the region of said lamp mounting and with an outlet vent in the region of the end thereof remote from the closed end of the outer enclosure, and means for effecting air circulation outwardly from said outlet vent.

2. In a device of the character described, the combination with an elongated vertically disposed enclosure closed at its upper end and including a part movable to open said end, of a similarly disposed elongated inner enclosure therein in central relation therewith and separate from said movable part and said enclosures providing vent space therebetween surrounding said inner enclosure, a lamp mounting on the upper end of said inner enclosure and within said outer enclosure and accessible by means of said movable part and adapted for removably carrying a lamp extending downwardly in said inner enclosure in central relation therewith, said outer enclosure being provided with an intake vent into said vent space in the region of the lower end thereof and extended horizontally thereabout, said inner enclosure being provided with an intake vent from said vent space in the region of the upper end thereof and extended horizontally thereabout and provided with an outlet vent in the region of the lower end thereof and extended horizontally thereabout, a blower chamber at one side of said enclosures and provided with an outlet vent, a vent passage communicating said first mentioned outlet vent and said blower chamber, and a fan in said blower chamber for effecting circulation outwardly through said outlet vents.

3. In a device of the character described, the combination with an elongated outer enclosure closed at one end and including a part movable to open said end and a portion of the side thereof, of a similarly disposed elongated inner enclosure therein in central relation therewith and separate from said movable part and said enclosures providing vent space therebetween, a lamp mounting on said inner enclosure and within said outer enclosure in the region of said closed end for access thereto by means of said movable part and adapted for removably carrying a lamp extending within and longitudinally of said inner enclosure, optical means mounted within said outer enclosure in cooperative relation with the filament of said lamp and accessible by means of said movable part, said outer enclosure being provided with an intake vent into said vent space in the region of the end thereof opposite said closed end, said inner enclosure being provided with an intake vent from said vent space in the region of said lamp mounting and with an outlet vent in the region of the end thereof remote from the closed end of the outer enclosure, and means for effecting circulation outwardly from said outlet vent.

4. In a device of the character described, the combination with an elongated vertically disposed enclosure closed at its upper end and in-

cluding a part movable to open said end and a portion of the side thereof, of a similarly disposed elongated inner enclosure therein in central relation therewith and separate from said movable part and said enclosures providing vent space therebetween surrounding said inner enclosure, a lamp mounting on the upper end of said inner enclosure and within said outer enclosure and accessible by means of said movable part and adapted for removably carrying a lamp extending downwardly in said inner enclosure in central relation therewith, optical means removably mounted within said outer enclosure in cooperative relation with the filament of said

lamp and accessible by means of said movable part, said outer enclosure being provided with an intake vent into said vent space in the region of the lower end thereof and extended horizontally thereabout, said inner enclosure being provided with an intake vent from said vent space in the region of the upper end thereof and extended horizontally thereabout and provided with an outlet vent in the region of the lower end thereof and extended horizontally thereof, and means for effecting circulation outwardly from said outlet vent.

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