June 30, 1942. H. A. DE VRY ET AL 2,288,345

PROJECTOR OR THE LIKE

Filed May 31, 1940

Fig. 1.

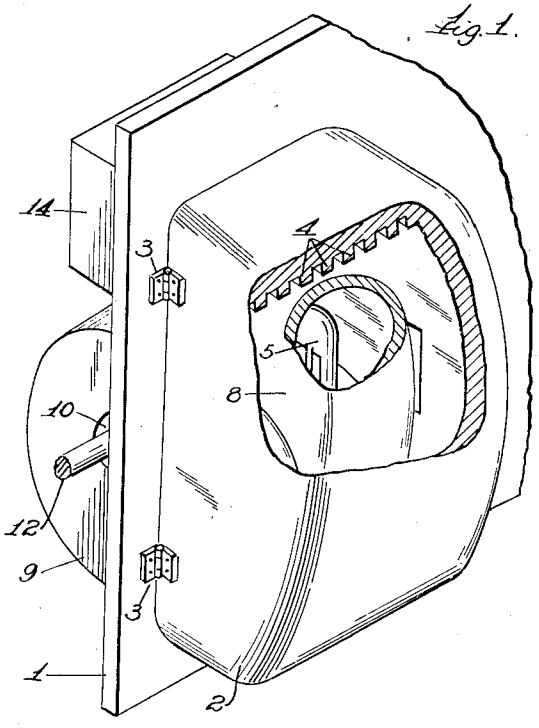


Fig. 3.

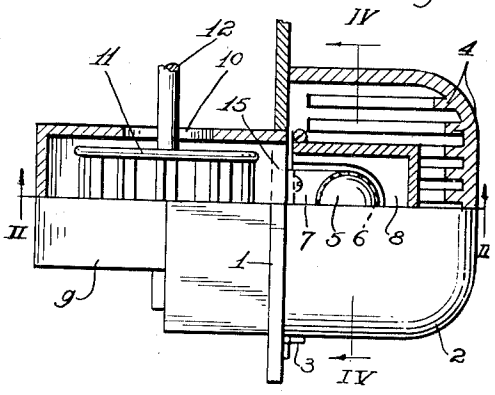


Fig. 2.

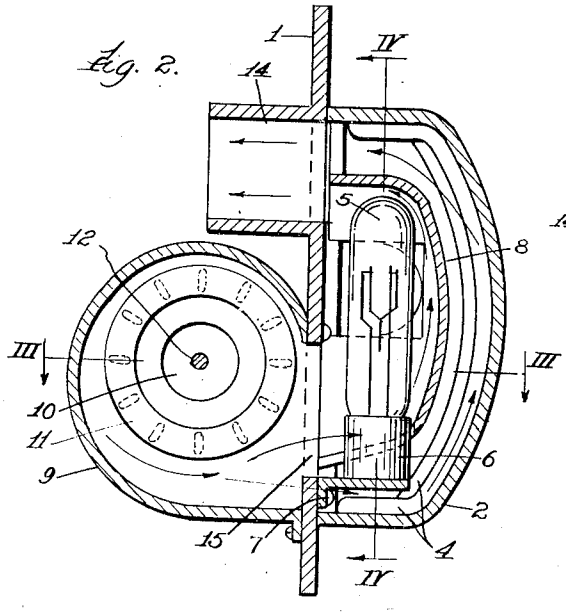
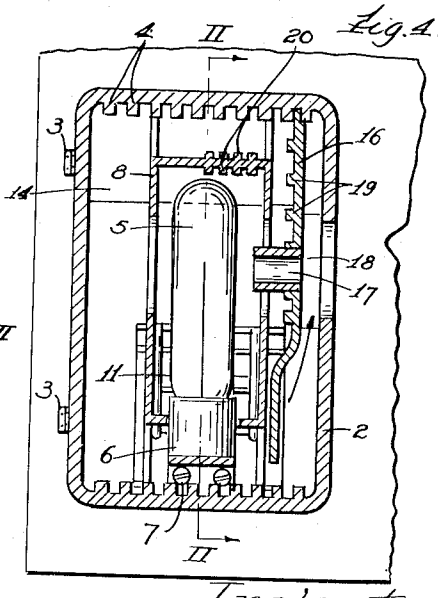


Fig. 4.



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PROJECTOR OR THE LIKE

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6 Claims. (Cl. 88—24)

The present invention relates to projectors or the like and it refers more particularly to a lamp housing especially intended for portable motion picture projectors.

The primary object of the invention is to provide a novel cooling or exhaust air blast system for the lamp and its housing. The heat radiating from the light source is carried off before reaching the outside of the projector, thus eliminating the disadvantages of previous structures, in which the outside of the projector became heated by the radiation from the light source, and in which heat radiating ribs were sometimes provided on the outside of the lamp housing.

Another object of the invention is to arrange a main wall of the casing which encloses the projector and the fan in such relation to a baffle in a housing surrounding the light source as to create a bi-partition of the exhaust air blast which is forced through the lamp housing by the fan whereby an inner blast of more elevated temperature within the baffle is carried off without reaching the outer wall of the lamp housing and an outer blast of less elevated temperature is carried off in a channel between the baffle and the outer wall.

A further object of the invention consists in additionally subdividing the air blast for the purpose of also cooling the film and the adjacent parts of mechanism of the projector itself.

Other objects and advantages of this invention will appear to those skilled in the art from the following specifications and the accompanying drawing, in which a lamp housing for a portable projector has been disclosed by way of example.

In the drawing:

Figure 1 is a perspective view showing a portion of a wall of a projector with a lamp housing and baffle attached thereto and partly broken away.

Figure 2 is a vertical section of the same taken as indicated at line II—II on Figure 3 and on Figure 4.

Figure 3 is a top plan view taken partly in section as indicated at line III—III on Figure 2.

Figure 4 is a sectional view taken as indicated at the line IV—IV on Figure 2, with the optical means omitted to simplify the views; the right half of Figure 4 represents a slight modification of the construction as compared with that shown in Figures 1 to 3.

In the drawing, 1 designates a main wall of the projector with the lamp housing 2 hinged thereto at 3, 3. The inside of this housing is provided with cooling ribs 4 or equivalent means for increasing the inner surface of the housing. The light source is shown as an incandescent lamp 5 mounted in a socket 6 carried on a bracket 7, secured to the main wall 1. A curved baffle 8 is fastened within the lamp housing 2 in such a position as to cause a bi-partition of the air blast from the fan chamber 9. This fan chamber may have bilateral inlets 10, 10 for the air at both sides of the rotary fan 11, which is carried by the shaft 12 suitably supported in its bearings, not shown. The baffle 8 also partitions the outlet 14 of the exhaust air blast. This outlet is formed as one of two openings in the main wall 1, the other opening 15 forming the inlet for the air blast from the fan 11 to the baffle 8.

The operation of the invention is as follows:

Rotated by a suitable means, not indicated in the drawing, the shaft 12 will rotate the fan 11 and air will be supplied to the man chamber 9 from the inlets 10, 10, and will be conveyed through the opening 15 to the light source 5 at the inner side of the baffle 8, as well as to the channel between the outer face of this baffle and the inside of the lamp housing 2. The inner side of the baffle is provided with cooling ribs or the like 4. Both streams of air are discharged through the outlet opening 14.

In the modification shown in the right half of Figure 4, a partition 16 sub-divides the lamp housing 2. This partition may help to form a support 17 for optical means of the projector. The shape of the partition 16 is such as to cause a subdivision or further by-partition of the outer air blast through the channel which extends between the baffle and the outer wall of the housing 2. This part of the outer exhaust air blast will be discharged through a third window 18 provided in the main wall I, and will effect a special cooling of the film and of gate members in the projector, not shown.

It may be noted that the curved shape of the lamp housing 2 will smoothly guide the air stream from the inlet 15 to the outlet 14, and that the ribs 4 or the like extend in the direction of the air flow for the purpose of avoiding a disadvantageous brake effect. The partition 16 may have addition ribs 19 or the like on one side, as shown, or on both sides, these ribs further increasing the cooling effect. And the baffle 8 may be provided with ribs 20 or the like, as shown in the right-hand portion of Figure 4 by way of indication, on both sides thereof. These baffle ribs may be replaced by any equivalent formation for affording a maximum heat absorbing and radiating surface to intensify the cooling effect.

Having now particularly described and ascertained the nature of our invention and the manner in which the same may be performed, what we claim and desire to protect by Letters Patent is:

1. In a projector which includes a lamp, a lamp housing, a blower and a casing for the blower having an outlet discharging through the lamp housing, the combination of a baffle wall disposed between the lamp and the inner surface of the housing extending in the general direction of air flow therethrough and dividing the air discharged by the blower into a stream flowing in contact with the lamp and a stream flowing between the baffle and the lamp housing, the inner surface of said housing having inwardly projecting ribs extending in the general direction of air flow through the housing for absorbing heat from the air.

2. In a projector which includes a lamp, a lamp housing, a blower and a casing for the blower having an outlet discharging through the lamp housing, the combination of a baffle wall disposed between the lamp and the inner surface of the housing, said wall extending in the general direction of air flow through the housing and dividing the air discharged by the blower into a stream which flows in contact with the lamp and a stream which flows between the baffle and the lamp housing wall, said baffle being formed with integral ribs extending in the direction of air flow along the baffle and projecting inwardly toward the lamp and outwardly toward the inner wall of the housing for absorbing and dissipating heat generated by the lamp.

3. In a projector, the combination of a vertical wall, a lamp, a lamp housing secured to said vertical wall at one side, a blower supported by said wall at the other side with an outlet port in the wall through which the blower discharges into the lower portion of the lamp housing and a second port in the wall through which air circulated through the housing is discharged from the upper portion of said housing, together with a curved baffle extending through the housing and over the lamp in the general direction of air flow therethrough, said baffle sub-dividing the outlet port of the blower and directing the air discharged therefrom in two streams, one stream flowing in contact with the lamp and the other stream flowing between the baffle and the lamp housing, said baffle extending to the said second port for directing both streams therethrough.

4. In a projector which includes a lamp, a lamp housing, a blower and a casing for the blower having an outlet discharging through the lamp housing, the combination of a baffle wall disposed between the lamp and the inner surface of the housing extending in the general direction of air flow therethrough and forming a jacket around the lamp, said jacket and housing having aligned openings to register with the filament of a lamp within the jacket, and a partition mounted in spaced relation between the jacket and the inner wall of the housing and including a support for an optical element in alignment with said registered openings, the jacket having an inlet opening communicating with the blower outlet whereby the air discharged by the blower is divided into a stream flowing through the jacket in contact with the lamp and a stream flowing between the jacket and the lamp housing, said last mentioned stream being further sub-divided by the partition and the housing having an outlet for a sub-divided portion thereof adjacent the optical element support.

5. In a projector, the combination of a vertical wall, a lamp, a lamp housing secured to said vertical wall at one side, a blower supported by the said wall at the other side with an outlet port in the wall through which the blower discharges into the lamp housing and a second port in the wall through which air circulated through the housing is discharged, together with a curved baffle extending through the housing in the general direction of air flow therethrough, said baffle extending around the lamp on three sides and cooperating with the vertical wall to form a jacket around the lamp, said baffle sub-dividing the outlet port of the blower and directing the air discharged therefrom in two streams, one stream flowing in contact with the lamp and the other stream flowing between the baffle and the lamp housing, said baffle extending to the said second port in the wall for discharging both streams therethrough.

6. In a projector which includes a lamp, a lamp housing, a blower and a casing for the blower having an outlet discharging through the lamp housing, the combination of a baffle wall disposed between the lamp and the inner surface of the housing, said wall extending in the general direction of air flow through the housing and dividing the air discharged by the blower into a stream which flows in contact with the lamp and a stream which flows between the baffle and the lamp housing wall, said baffle being formed with integral ribs extending in the direction of air flow along the baffle and projecting outwardly toward the inner wall of the housing, and said inner wall of the housing being formed with integral ribs extending in the direction of air flow and projecting inwardly toward the ribs of the baffle whereby heat is transferred from the baffle to said ribs of the housing and is absorbed from the ribs of both parts by the air stream flowing between them.

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