

C. F. JENKINS.
 SELECTIVE SUPPRESSION OF RADIANT RAYS.
 APPLICATION FILED APR. 20, 1917.

1,302,802.

Patented May 6, 1919.

Fig. 1.

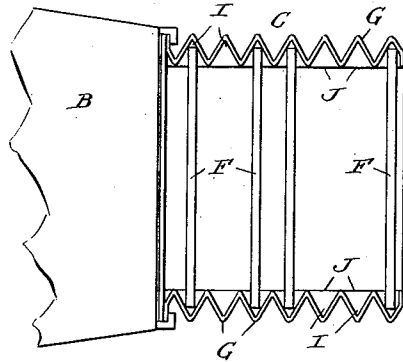


Fig. 2.

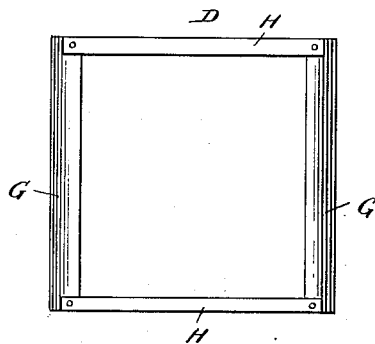


Fig. 3.

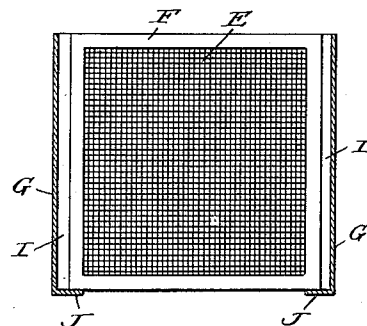
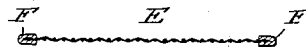


Fig. 4.



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SELECTIVE SUPPRESSION OF RADIANT RAYS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, a citizen of the United States, and a resident of Washington, in the District of Columbia, have invented certain new and useful Improvements in Selective Suppression of Radiant Rays, of which the following is a specification, reference being had therein to the accompanying drawing.

It is often desirable to suppress certain kinds of rays from a source of radiant energy while permitting rays of different characteristics to pass, for example, heat rays, light rays, non-luminous rays from a source of light, and certain X rays.

Most of my work along this line has been directed to suppressing heat rays in beams of light used in projecting motion pictures.

It is common knowledge that ordinarily motion picture film ignites if the projecting beam be allowed to fall for more than brief intervals upon the same portion of the film. Many expedients for overcoming this evil have been tried, the beam, for example, being cooled by passing it through water, or being cut off automatically by a shutter whenever the advance of the film falls below a safe rate.

The use of water is for many reasons objectionable, and interrupting the beam as suggested, prevents retaining a given picture on the screen while it is critically examined, which is highly desirable in much scientific and other work where motion pictures are now used. The evils mentioned are avoided by passing the beam through a series of suitable plates and thereby largely suppressing the heat rays. Glass plates reduce heat to a considerable degree, but they break through unequal heating. Mica plates do not break, but where several are used they color a light beam. Plates of foraminous metal have neither objection. Such plates may be of copper, which is a good conductor of heat, and may be formed by so perforating a thin sheet as to leave but a small part of the metal, or by weaving fine wire, or by the use of parallel wires, or by spirally coiled wire, and in fact any structure adapted to allow rays and air to pass readily may be employed. Preferably, the plates are spaced apart and so supported that air may pass freely from the space below to the space above them. For illustration, plates the body of which is formed of woven wire are chosen, and in the accompanying drawings,

Figure 1 is a plan view showing a series of foraminous plates independently and removably held in the path of a picture projecting beam of light.

Fig. 2 is an end elevation of the plate holding devices, the plates being in position.

Fig. 3 shows one of the broad faces of one form of plate.

Fig. 4 is a cross section of the plate shown in Fig. 3.

In these views, A represents a picture film in the path of a beam of light from a source B which may be a common chamber containing an electric light. C is an interposed heat reducing device which may be detachably supported upon the chamber B, and this device includes a frame D carrying any desired number of spaced plates E transverse to and in the path of the light beam. As shown, each plate consists of a plane wire screen having a marginal reinforcement or frame F. The frame for holding these plates may be of any suitable structure but in this instance is shown as consisting of two parallel corrugated metal sheets G in vertical planes and connected at top and bottom of each end by metal bars H, the corrugations forming a series of vertical grooves I into which the plates are dropped to rest upon narrow in-bent portions J forming stops at the lower ends of the grooves, which are sufficient in number to receive any number of plates that may probably be desired. No attention need be paid to having the meshes or openings in different plates in registry or alinement. The frame having neither top nor bottom members, air rises freely between the plates.

What I claim is:

1. The combination with a source of light and means for directing a beam therefrom through free air to a screen, a series of bodies of high thermal conductivity extending across the beam and forming numerous narrow passages through which parts of the beam may pass freely.

2. The combination with a source of light and means for directing a beam therefrom, of devices for holding a series of approximately parallel spaced plates across the path of the beam, and a series of foraminous plates variable at will as to number and each independently and removably held by said devices with its faces exposed in atmosphere free to ascend.

3. For reducing heat in a beam of light,

a series of spaced foraminous plates of high thermal conductivity held in the path of the beam and transmitting light rays through its narrow slightly separated openings.

5 4. For reducing heat in a beam of light, a series of spaced foraminous metal plates all cutting the beam transversely.

5. The combination with a source of light and means for directing a beam therefrom,
10 of a series of spaced screens of high thermal

conductivity, having their perforations narrow and slightly separated, arranged to be moved at will into and out of the path of said beam, whereby light and heat may be varied without varying the beam approach- 15
ing the screen.

In testimony whereof I hereunto affix my signature.

CHARLES FRANCIS JENKINS.