

C. J. PAULSON.
REFLECTOR FOR MOVING PICTURE MACHINES.
APPLICATION FILED MAR. 26, 1909.

947,256.

Patented Jan. 25, 1910.

Fig. 1.

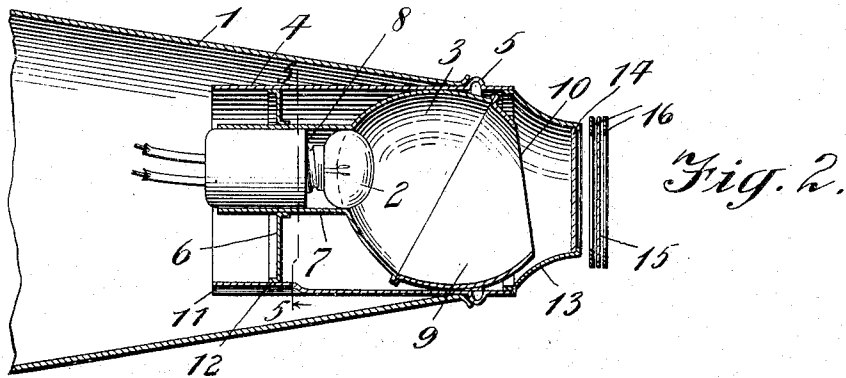
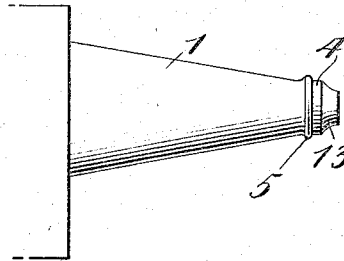


Fig. 2.

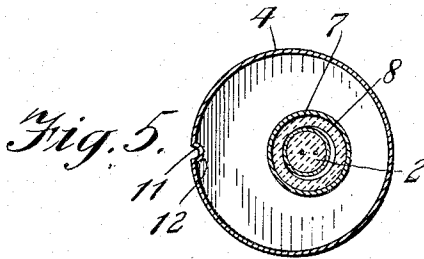


Fig. 5.

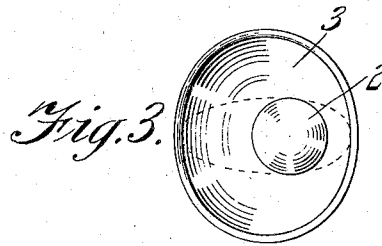
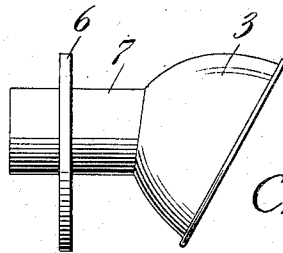


Fig. 3.

Fig. 4.



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CHARLES J. PAULSON, OF CARLSKRONA, SWEDEN.

REFLECTOR FOR MOVING-PICTURE MACHINES.

947,256.

Specification of Letters Patent.

Patented Jan. 25, 1910.

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To all whom it may concern:

Be it known that I, CHARLES J. PAULSON, a subject of the King of Sweden, and resident of the city of Carlskrona, Sweden, have invented certain new and useful Improvements in Reflectors for Moving-Picture Machines, of which the following is a specification.

This invention relates to projection apparatus, and more particularly to moving-picture machines.

The objects of the invention are to remove the light and reflector from the body of the lantern to the projecting tube, and to so construct and arrange the reflector and light that the beam is flattened.

The novel location of the light and reflector greatly reduces the candle power required, thus reducing the heat and eliminating the danger of igniting the film, leaves the body of the lantern free for batteries, etc., and obviates the necessity of a condensing lens. By flattening the beam of light, the beam is made to conform to the shape of the window past which the film passes, thus utilizing the light more efficiently than with a round beam.

Therefore, the invention may be said to consist in projection apparatus having its light and reflector located in the projecting tube or funnel, and also in a hollow, curved reflector and a light disposed eccentrically therein.

More specific features of novelty will become apparent as the specification proceeds.

In the drawings, Figure 1 is a side elevation, somewhat diagrammatic, showing the relation of the projecting tube or funnel and the body of the apparatus; Fig. 2 is a horizontal section through the projecting tube and the parts therein, the light being shown in elevation; Fig. 3 is a front view of the reflector and light; Fig. 4 is a top plan view thereof; and Fig. 5 is a transverse section on the line 5-5, of Fig. 2.

Referring to these drawings, let the numeral 1 designate the projecting tube or funnel, extending forward from the body of the lantern. In this tube, preferably toward the forward end thereof, are located a light 2, which may or may not be an electric light, and a reflector 3. While other modes of holding the light and reflector in place may be resorted to, desirable means are as follows: A tube 4 fits frictionally within the outer tube 1, being inserted and

removed from the front and provided with a peripheral bead or flange 5 for engagement with the end of the tube 1. Slidably fitted within the tube 4 is a disk or plate 6, pierced eccentrically for the reception of the tubular rear extension 7 of the reflector 3, said disk and extension being preferably permanently united. The light 3 is illustrated as an electric light, screwed into a socket 8, which is fitted slidably within the tubular extension 7, so that the light may be adjusted forward or backward for proper positioning with reference to the reflectors.

It will be seen that the light is disposed to one side within the hollow, curved reflector 3. The result of this is that the beam of light, instead of being circular in cross-section, is flattened, as indicated in dotted lines. Preferably, the reflector is a hollow paraboloid, with its axis inclined to the direction of projection and, therefore, to the axis of the outer projecting tube 1. A complementary hollow paraboloidal reflector 9 is preferably secured in the front of the tube 4, in such position that its axis is practically in alinement with the axis of the reflector 3. This reflector 9 is suitably apertured at 10 for the passage of the beam of light. For guiding the reflector 3 in its movement toward the fixed reflector 9, I may provide the tube 4 with a depressed longitudinal bead 11 and the disk 6 with a corresponding notch 12, or conversely. The forward open end of the tube 4 may be suitably restricted by an apertured shield or front plate 13. The aperture through this shield may be occupied by a piece of ordinary glass 14, for the purpose of protecting the film.

The film is indicated at 15 and its projectors at 16. The wires from the electric light 2 are of such length as to permit the tube 4 and its contents to be removed from the tube 1.

What I claim as new is:—

1. A lamp housing adapted for use with a moving picture machine having the light and reflector thereof located in the forward extending projecting tube.

2. A lamp housing adapted for use with a moving picture machine having a forward extending projecting tube, and a source of light and a reflector located in the forward part of said tube.

3. A lamp housing adapted for use with a moving picture machine having a forward

extending projecting tube, a tube slidably and removably mounted in the forward end thereof, a hollow curved reflector slidably mounted in the last-named tube, and a source of light adjustably mounted in front of said reflector.

4. A lamp housing adapted for use with a moving picture machine having a forward extending projecting tube, a tube slidably and removably mounted in the forward end thereof, a hollow curved reflector and a guide disk secured thereto held slidably in the last named tube, and a source of light located in front of said reflector.

5. A lamp housing adapted for use with a moving picture machine having a forward extending projecting tube, a tube slidably and removably mounted in the forward end thereof, a hollow curved reflector slidably mounted in the last-named tube and having a tubular rearward projection, and an electric lamp socket mounted slidably in said tubular projection.

6. A lamp housing adapted for use with a moving picture machine having a tube, a reflector mounted slidably therein, being in the form of a hollow paraboloid disposed with its axis at an angle to the axis of said tube, and a complementary hollow paraboloidal reflector mounted stationarily within the tube with its axis substantially in alinement with the axis of the other reflector, and a source of light mounted between said reflectors.

7. A lamp housing adapted for use with a moving picture machine having a tube, a

reflector mounted slidably therein, means whereby said reflector is held against turning in its longitudinal movement in the tube, and a complementary reflector mounted stationarily in advance of the other reflector, together with a source of light between said reflectors.

8. A lamp housing adapted for use with a moving picture machine having a tube, a reflector mounted slidably therein, being in the form of a hollow paraboloid disposed with its axis at an angle to the axis of said tube, a guide disk secured to said reflector and means formed on said tube and disk whereby the reflector is held against rotation in its longitudinal movement in the tube, a complementary hollow paraboloidal reflector mounted stationarily within the tube with its axis substantially in alinement with the axis of the other reflector, and a source of light disposed between said reflectors.

9. A lamp housing adapted for use with a moving picture machine having a hollow curved reflector, a source of light within and toward one side thereof, and a complementary hollow curved reflector in advance of and facing the first and being suitably apertured for the passage of the beam of light.

Signed at New York, N. Y., in the county of New York and State of New York, this 23d day of March, 1909.

CHARLES J. PAULSON.

Witnesses:

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