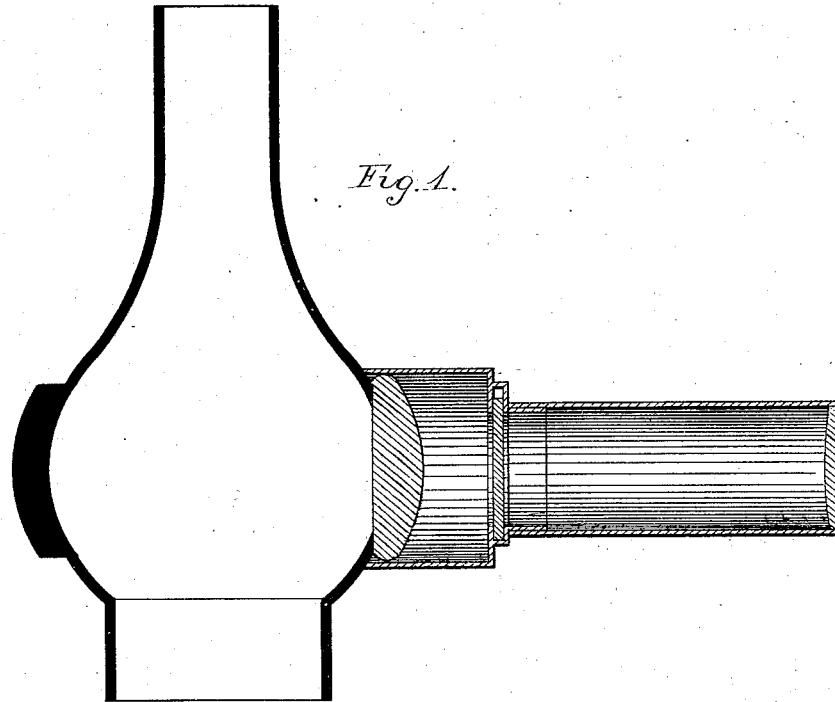


F. RHIND & F. S. SHIRLEY.  
Magic-Lantern.

No. 217,150.

Patented July 1, 1879.



Witnesses:

*J. W. Garner*  
*W. L. Haines*

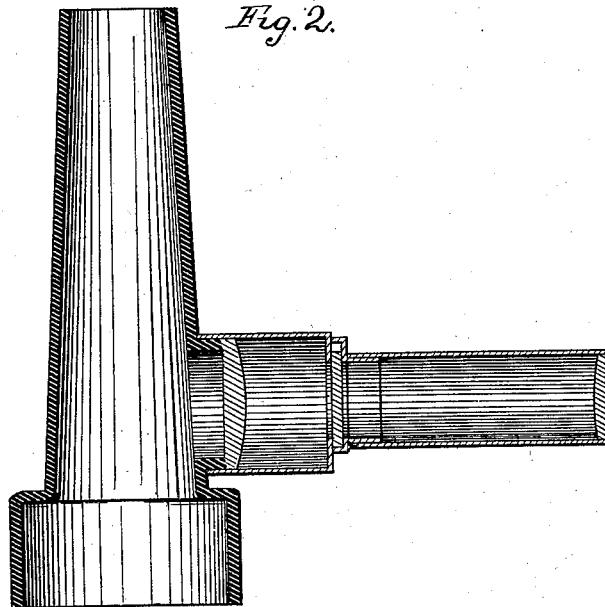
Inventors:

*Frank Rhind*  
*Fred. S. Shirley*  
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*F. W. Lehmann, atty*

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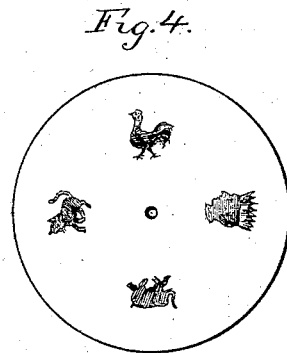
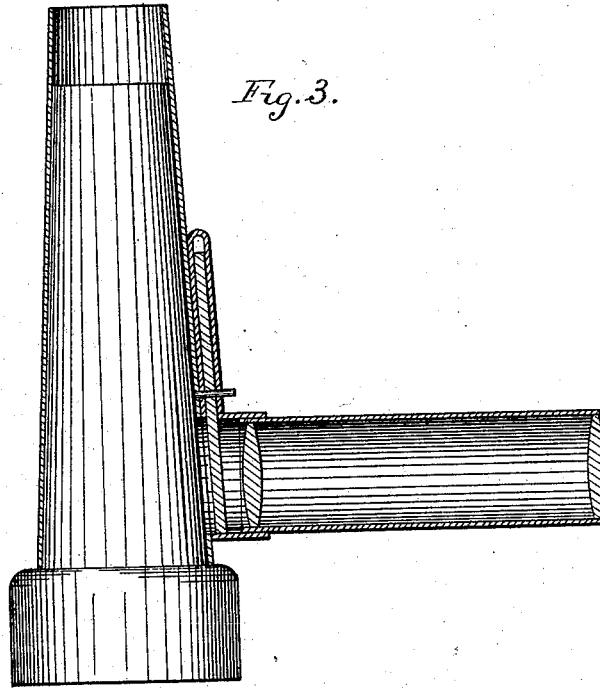
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# UNITED STATES PATENT OFFICE.

FRANK RHIND, OF BROOKLYN, N. Y., AND FREDERICK S. SHIRLEY, OF NEW BEDFORD, MASS., ASSIGNORS OF ONE-THIRD THEIR RIGHT TO F. A. LEHMANN, OF WASHINGTON, D. C.

## IMPROVEMENT IN MAGIC LANTERNS.

Specification forming part of Letters Patent No. **217,150**, dated July 1, 1879; application filed May 3, 1879.

*To all whom it may concern:*

Be it known that we, FRANK RHIND, of Brooklyn, New York, and FRED. S. SHIRLEY, of New Bedford, Massachusetts, have invented certain new and useful Improvements in Magic Lanterns; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improvement in magic-lanterns; and it consists in utilizing the common lamp-chimney by making it opaque and applying a lens directly to its side, so that it is only necessary to remove the common white-flint chimney and insert ours in its place, when the lantern is ready for use without any further preparation, as will be more fully described hereinafter.

Figures 1 and 2 represent vertical sections of different forms of chimney, showing the lenses as forming parts of their surfaces. Fig. 3 represents a vertical section of a different form of cover, which may be applied to the outsides of the chimneys for the purpose of rendering them opaque, and which has the lens secured in it. Fig. 4 is a side elevation of the revolving pieces of glass having the pictures painted upon them.

Heretofore magic lanterns have been used in connection with lamps and lights of different kinds, but have always required more or less of an apparatus, and needed considerable preparation before using them. To such an extent has this been the case that for the lanterns sold there has been so large a price asked that even the very small lanterns have had but a very limited sale.

It has been our aim to devise a lantern which could be instantly applied to any lamp without any preparation whatever, further than to apply either the chimney itself, where the lenses form a part of its surfaces, or an opaque cover to any of the chimneys now in use, and thus prepare a lantern for instant use, requiring no further trouble than to get a proper focus and pass the pictures between the lenses,

This we have accomplished by either rendering the chimneys themselves opaque by painting or coloring them or making them of black glass and applying the lenses of pure flint glass directly to their side, or by inclosing any of the common white-flint-glass chimneys in an opaque cover which has the lens secured to its side. These covers may be either of the exact shape of the outside surface of the chimney, or they may be considerably larger than the chimney, and be supported upon a plate or support which will be attached to the neck of the lamp-bowl.

The lenses or lens-tubes will be of any construction or size that may be preferred, the only requisite being that the lenses shall be applied to the side of the chamber, so as to come just opposite the flame and receive the full force of the light.

Where the lens is applied while hot directly to the side of the chimney, as shown in Fig. 1, a protuberance is formed, over which the inner end of the lens-tube fits with sufficient force to always hold the tube in place.

Where it is desired to make the lens removable, a tubular projection will be formed on the side of the chimney and the lens placed inside of it, and the lens-tube applied to the outside of the projection.

The pictures to be shown may either be painted or otherwise marked upon ordinary slides, so as to be pushed in on one side of the lens-tube and taken out on the other; or the pictures may be made upon a flat disk of glass having a hole through its center, and which can be pivoted in a suitable support formed on the side of the opaque cover or upon the top of the lens-tube, and thus be made to revolve, so that each picture painted around its edge will be successively brought before the lens, and thus reflected upon the wall or other suitable place.

By means of our invention any light, while in use, can be instantly converted into a magic lantern, either by applying one of the opaque chimneys over the light or by placing an opaque cover over the chimney already in use, and thus instant amusement can be furnished for the family without the trouble and expense

of having to prepare the whole apparatus, which is generally so troublesome that magic lanterns are seldom used.

As these lanterns can be furnished at a very small cost, it will readily be seen that they are brought within the reach of almost every child.

Having thus described our invention, we claim—

1. In a magic lantern, a lamp-chimney that is opaque at all points except where the lens is applied to it, in combination with a lens-tube, substantially as shown.

2. An opaque lamp-chimney having a lens applied directly to or in its side, and having a projection, upon which the lens-tube is attached, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 28th day of February, 1879.

FRANK RHIND.

FREDERICK S. SHIRLEY.

Witnesses:

J. GEORGE FLAMMER,

DAVID E. TYRRELL.