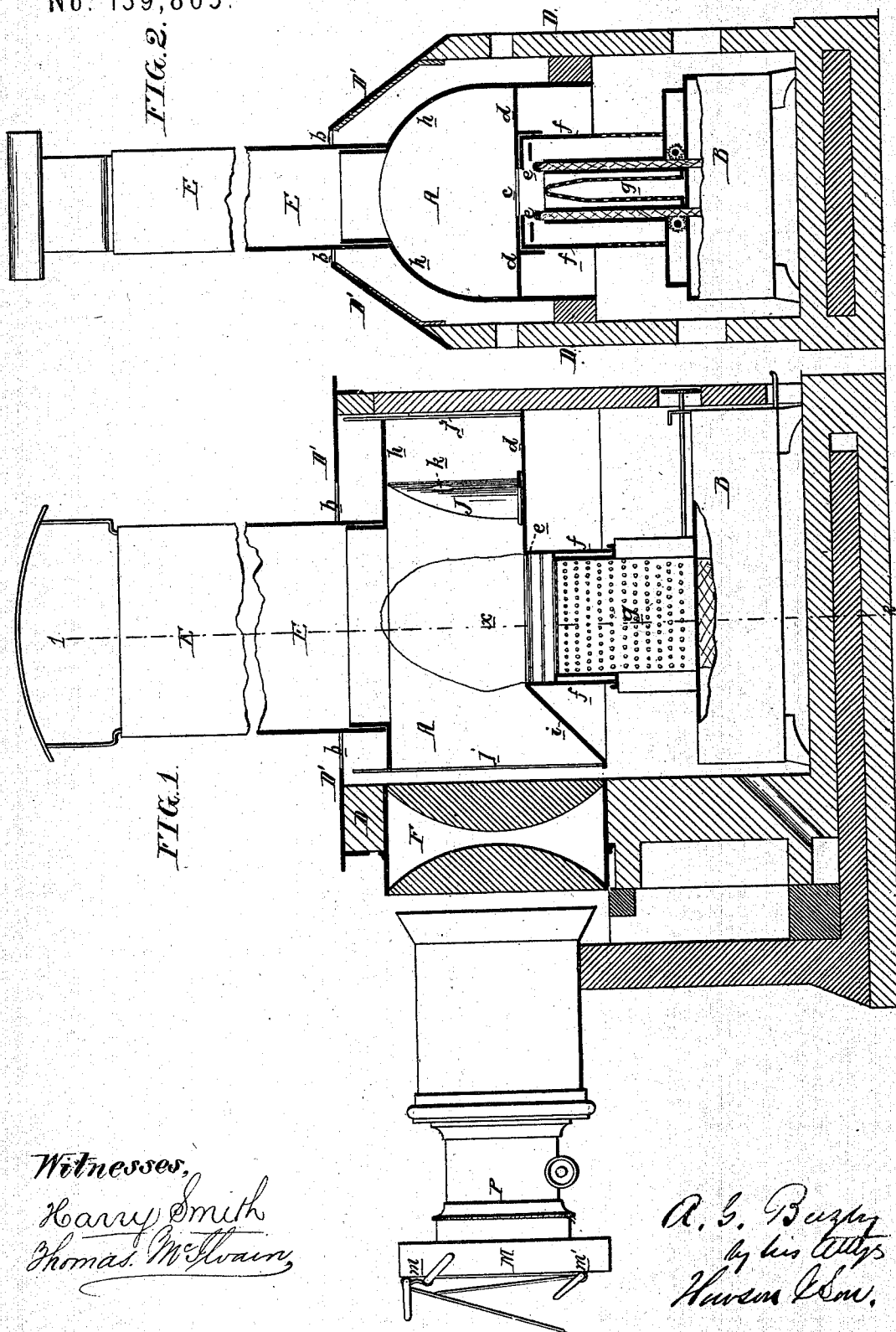


A. G. BUZBY.
Magic-Lanterns.

No. 139,865.

Patented June 17, 1873.



Witnesses,
Harry Smith
Thomas McQuinn

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by his attys
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UNITED STATES PATENT OFFICE.

ALBERT G. BUZBY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MAGIC LANTERNS.

Specification forming part of Letters Patent No. **139,865**, dated June 17, 1873; application filed February 21, 1873.

To all whom it may concern:

Be it known that I, ALBERT G. BUZBY, of the city and county of Philadelphia, State of Pennsylvania, have invented certain Improvements in Magic Lanterns, of which the following is a specification:

The objects of my invention are to prevent undue heating of the exterior of a magic-lantern apparatus, to obtain a clear bright flame from the lamp, and to enable the latter, at the same time, to be readily removed and replaced, to arrange the condensing-lens most advantageously in respect to the combustion-chamber and flame of the lamp to reflect the said flame, to tightly close the combustion-chamber at its opposite ends with an indestructible transparent medium, and to enable tinting-plates to be readily attached to the front lens of the lantern and conveniently operated.

I accomplish these objects by constructing the lantern in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which Figure 1 is a longitudinal section of the lantern, and Fig. 2 a transverse section of the same on the line 1 2.

The combustion-chamber A, immediately over the lamp B, is surrounded, at the sides and ends, by an outer casing, D, of wood or other non-conducting material, which prevents the usual undue heating of the exterior of the lantern to the inconvenience and discomfort of the operator. The top D¹ may also, if desired, be covered with wood having its interior lined with metal, but in the present instance the top is of metal, having a polished inner surface which deflects the heat radiated from the exterior of the combustion-chamber. The heat thus deflected escapes through apertures *b* adjacent to the chimney E, which carries off the heated gases, &c., from the combustion-chamber A. The latter has an elongated opening, *c*, in its flat bottom-plate *d*, coinciding with the opening in the flat top *e* of the cone or dome *f* of the lamp, the said opening defining the shape of, and being situated at the base of, the flame *x*, which is therefore contained entirely within the combustion-chamber. The dome *f* entirely surrounds and projects slightly above the wick-

tubes and is perforated at its base for the admission of air. Air also passing through a perforated tube, *g*, having a double-inclined top, and mingling with that which enters the base of the dome to feed the flame, the latter, owing to the close fit between the flat top of the dome and the bottom of the combustion-chamber, is bright and clear, and entirely free from smoke, owing to the absence of adverse currents, to the plentiful supply of air at the proper point, and to the perfect draft afforded by the chimney E. The employment of a dome with a flat top also enables the lamp to be withdrawn from and replaced in the case by simply sliding it out and in, a tight fit and the exclusion of adverse currents over the top of the dome being always insured, when the said dome is situated directly beneath the opening *c* in the bottom plate of the combustion-chamber. Instead of being perfectly flat the base-plate of the combustion-chamber and top of the dome might be slightly curved transversely. This is an important feature of my invention and much facilitates the operation of the lantern. The combustion-chamber has a semicircular top, *h*, of the exact size of the condensing-lens F, and the bottom of the said chamber inclines downward at the front *i* so as to take in the whole of the said condensing-lens, no portion of which is shut off from the flame as in other lanterns of this class. In order to intensify the flame I arrange a reflector, J, at the rear of the same and within the combustion-chamber. It is common to close the opposite ends of the combustion-chambers of lanterns of this class with plates of transparent glass which protect the condensing-lens and enable the flame of the lamp to be observed. I obtain the same result by the use of sheets *j* and *j*¹ of mica which, besides being indestructible, adapt themselves to slight inequality in the shape of the ends of the combustion-chamber and thus insure much closer joints for the exclusion of air, which would interfere with the draft, than can be obtained by the use of glass. A hole, *k*, in the reflector J, enables observations of the flames to be taken through the mica sheet *j*¹. In my patent of April 2, 1872, I described and claimed tinting-plates of different-colored glass to be used in connection

with a magic-lantern lens. Instead of permanently securing these tinters to the lens I now hinge them to a cap or band, M, which is simply slipped over the end of the lens P, from which it can be as readily removed; and instead of hinging all of the tinting-plates to one side of their frame or band, I hinge them at opposite points *m m'*, which enables them to be overlapped and manipulated more conveniently. I propose also to use colored films of gelatine instead of glass for the tinters.

I claim as my invention—

1. A magic-lantern apparatus in which a combustion-chamber, A, of metal is surrounded, or partially surrounded, by an outer casing, D, of wood or other non-conducting material, substantially as herein described.

2. A magic-lantern apparatus in which the combustion-chamber A is covered at the top

by a roof, D¹, lined with polished metal, or other reflecting material, for the purpose specified.

3. The combination, substantially as described, with the base-plate of the combustion-chamber, of a lamp having a dome arranged to fit snugly against the under side of the said base-plate.

4. The combination, substantially as described, with the outer lens-tube P of the lantern, of tinting-plates hinged to a detachable band, M.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT G. BUZBY.

Witnesses:

WM. A. STEEL,
HUBERT HOWSON.