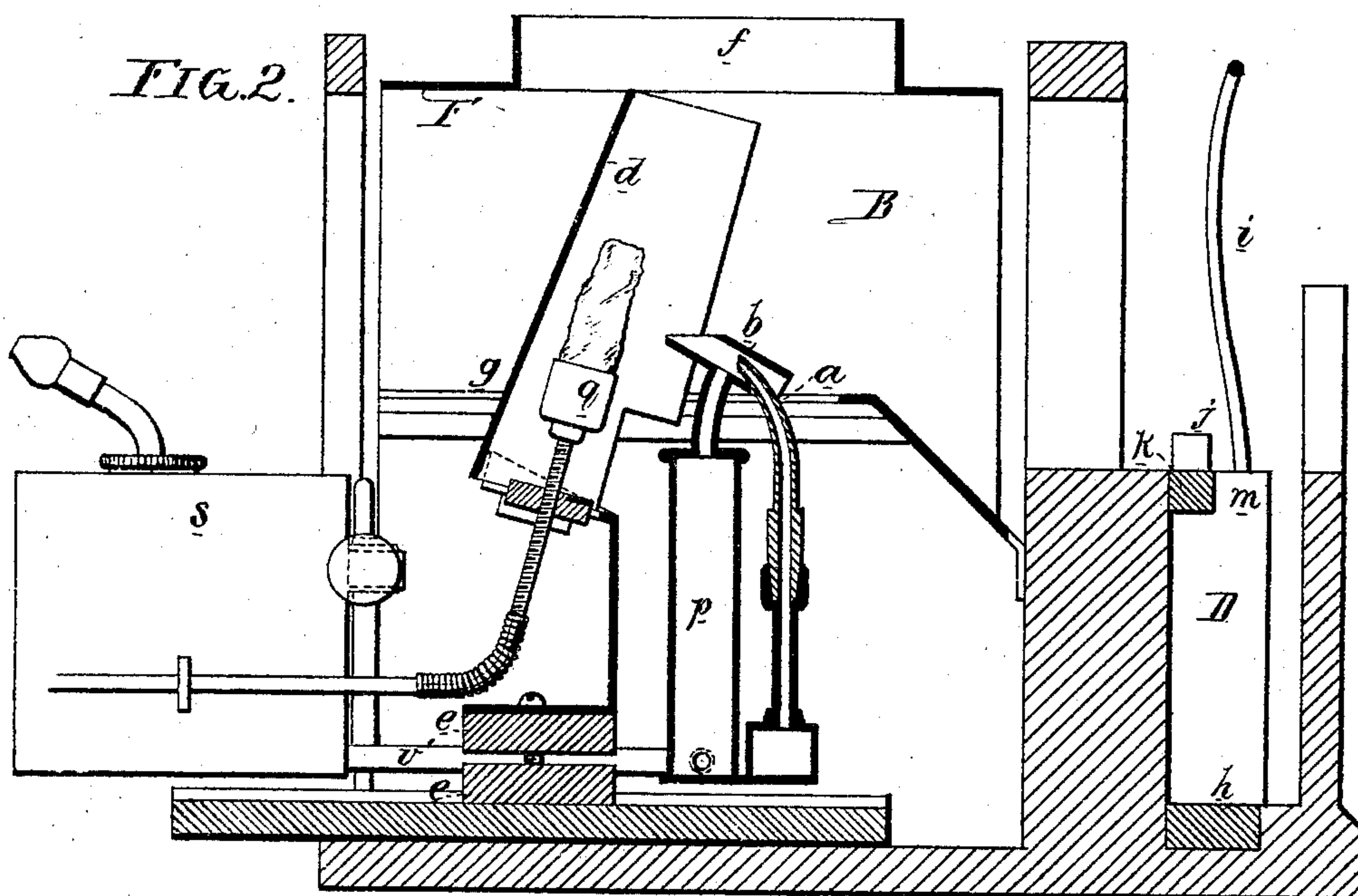
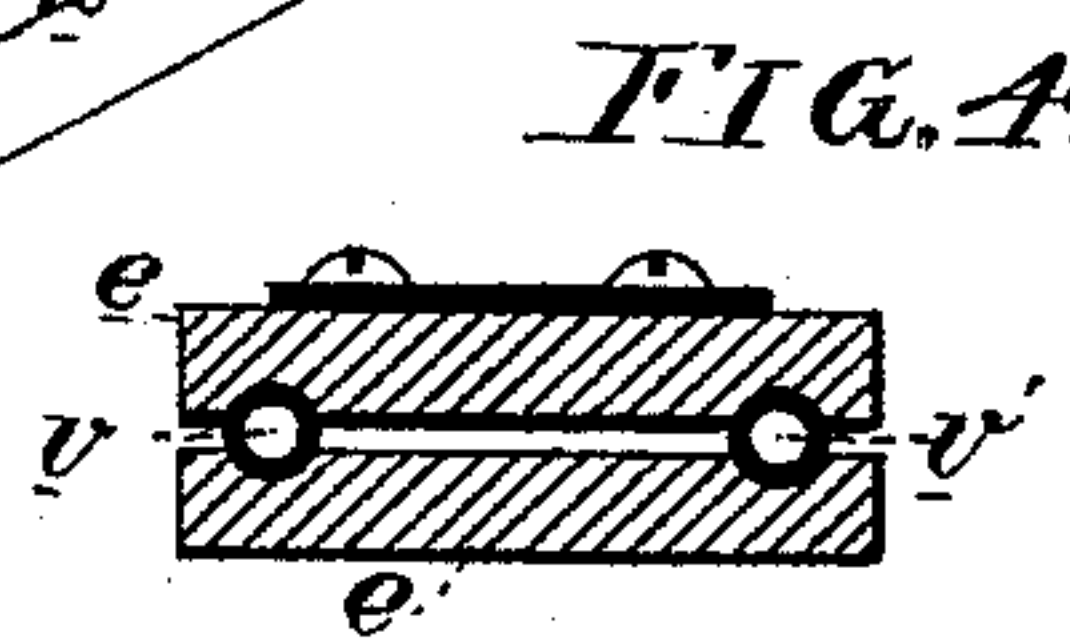
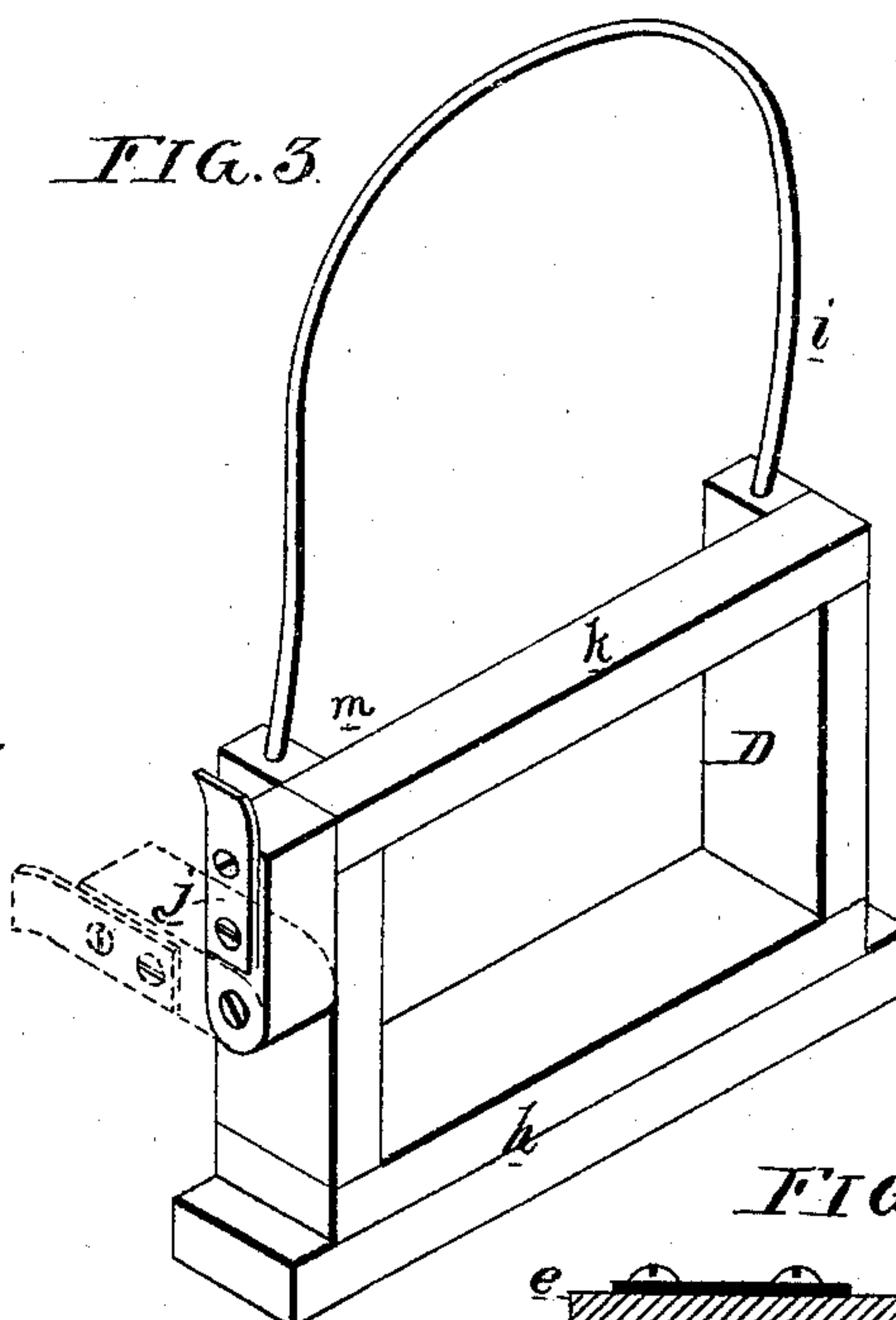
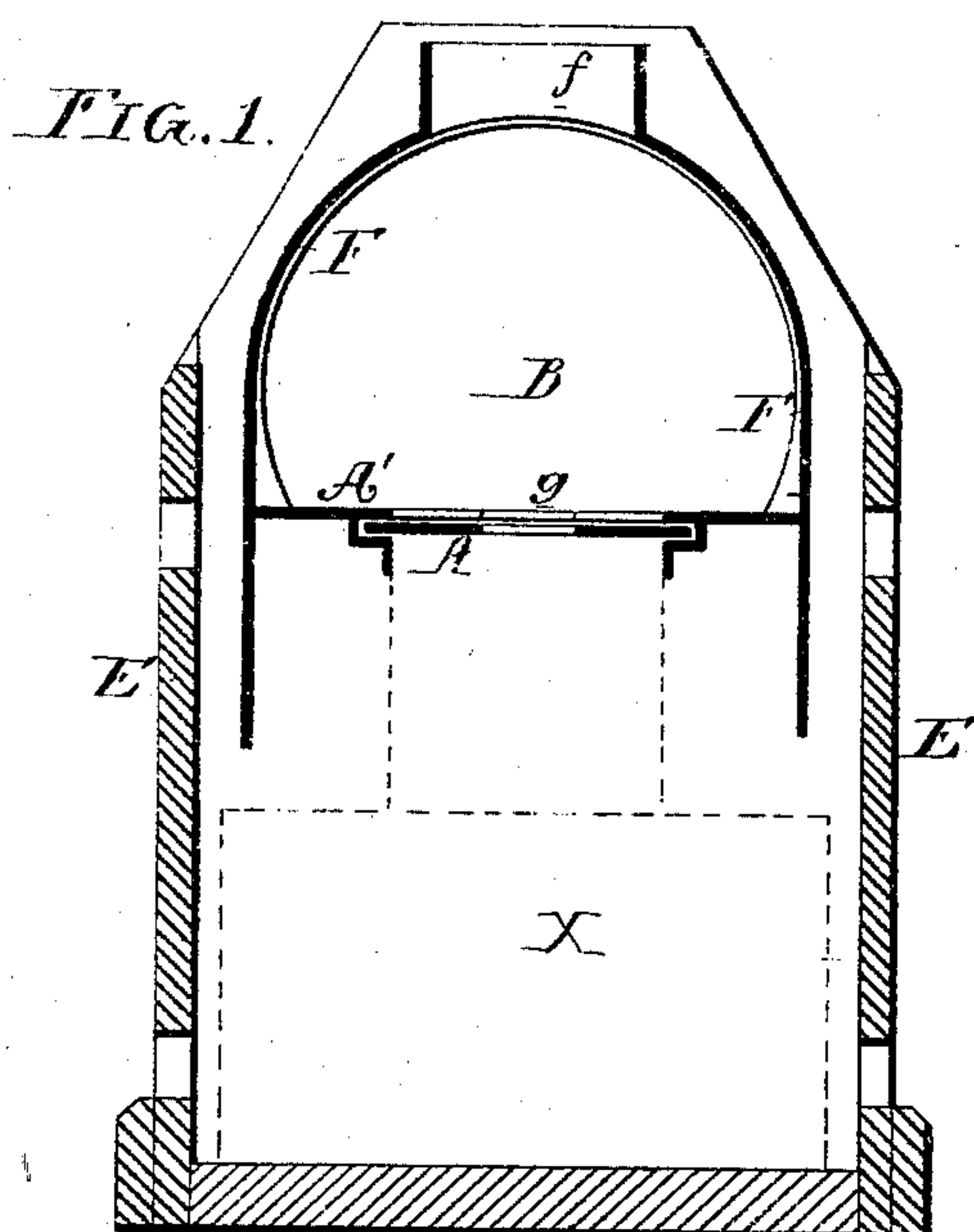


A. G. BUZBY.
Magic-Lanterns.

No. 144,314.

Patented Nov. 4, 1873.



Witnesses, Harry Smith
Thomas McEwan

Albert G. Buzby
by his Atty.
Towns and Son

UNITED STATES PATENT OFFICE.

ALBERT G. BUZBY, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MAGIC LANTERNS.

Specification forming part of Letters Patent No. **144,314**, dated November 4, 1873; application filed July 7, 1873.

To all whom it may concern:

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

The objects of my invention are, to permit the use of lamps or burners of different characters in the same magic-lantern apparatus; to facilitate the adjustment of the pictures or slides to the apparatus; to obtain a light of great power and brilliancy; and to prevent undue heating of the burner and apparatus.

I attain the first of these objects by the use of a slotted slide, A, in the base of the combustion-chamber B, which is removed when an oxycalcium or hydro-oxycalcium burner is employed. (See transverse section, Figure 1, of the accompanying drawing.) The second object is attained by the use of a detachable and reversible picture-holder, D, (shown in the longitudinal section, Fig. 2, and perspective view, Fig. 3;) the third object, by combining a nozzle, *a*, through which oxygen is passed, with a tube, *b*, of larger diameter, into which hydrogen is admitted, (see Fig. 2;) and the fourth object, by confining the flame within certain limits by a hood, *d*, and by the use of wood or other non-conducting material, *e*, at the point of connection between the supply-pipes and the lime-holder and its appliances. The apparatus has an outer casing, E, of wood, and an inner casing, F, of metal, the latter inclosing the combustion-chamber B, at the top of which is an outlet, *f*, for the products of combustion, and at the front end a space for the reception of a lens. The said combustion-chamber has a base, A', in which is a slot or opening, *g*, for the burner of a coal-oil lamp, X, which is contained entirely within the lower compartment of the apparatus, as indicated by dotted lines in Fig. 1; and when this lamp is used the combustion-chamber, which serves as a chimney for the same, must be closed at its opposite ends, glass or mica being preferably used at both ends for this purpose.

As it is often desirable to use an oxycalcium or hydro-oxycalcium burner, I have made all or a portion of the base A' of the apparatus in the form of a slide, A, which can be entirely withdrawn, in order to permit the introduction

of either of the above-mentioned burners, as shown in Fig. 2, the said slide having a slot, *g*, adapted to the shape of a coal-oil burner, over which it is adjusted when the latter is used, as shown in Fig. 1.

At the front of the apparatus is a picture-holder, D, the base *h* of which is adapted to a recess in the frame, as shown in Fig. 2. This holder has the usual wire bow *i* and a stop, *j*, for determining the proper position of ordinary pictures; but the said stop *j*, instead of being fixed, is pivoted to the edge of the holder, so that it may be turned downward out of the way, as indicated by dotted lines in Fig. 3, when a longer picture than usual, or one which would probably be interfered with by the said stop, is adjusted to the apparatus. The holder is also reversible, its ledge *k* at one side forming a support for ordinary pictures, while it is cut away at the opposite side, as shown at *m*, so that it can be conveniently used for ascending and descending slides, the recess *m* permitting the slides, which are of a width adapted to it, to be gradually lowered (by a screw or otherwise) until brought below the center of the lens, thus producing the effect of an ascension of the image upon the screen upon which the light is thrown.

The general form of the hydro-oxycalcium burner is illustrated in Fig. 2. Hydrogen is passed through a pipe, *p*, and ignited, and a jet of oxygen is caused to cross the hydrogen flame, the flame of the combined gases playing upon a lime pencil in a holder, *q*, capable of being raised and lowered, as usual. I have found that by using a nozzle, *a*, for the oxygen inserted into a short pipe, *b*, of larger diameter, into which the hydrogen is admitted, I can obtain a much more powerful and brilliant flame than usual.

When an oxycalcium light is to be used, the pipe *b* is detached, and a short wick-tube substituted for the same, and the pipe *p* is filled with wick, which is kept saturated with alcohol from a reservoir, *s*. The alcohol wick is ignited and an oxygen jet from the nozzle *a* is caused to cross the same and play upon the lime pencil. The hood *d*, which partially surrounds the lime-holder, confines the flame within proper limits, and directs the heated products to the outlet *f* above. It also pre-

vents undue heating of the surrounding parts of the apparatus, and enables a much smaller casing to be used than would be practicable without it. The lime-holder and hood are adjustable from and toward the burner upon the pipes *v v'*, through which the supplies of hydrogen and oxygen, or of alcohol and oxygen, are conveyed to the said burner; and to prevent the usual undue heating of these pipes, I use wood or other non-conducting material, *e*, as a medium of connection. (See Fig. 2, and transverse section, Fig. 4.)

I claim as my invention—

1. The combination, substantially as described, of the slotted slide A with the com-

bustion-chamber of a magic-lantern apparatus, for the purpose specified.

2. The combination, substantially as described, with a magic-lantern apparatus, of a reversible picture-holder, D, provided with an adjustable stop, *j*.

3. A hood, *d*, arranged within a magic lantern, in respect to the burner, as and for the purpose set forth.

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

Witnesses: ALBERT G. BUZBY.

WM. A. STEEL,

HARRY SMITH.