

(No Model.)

T. GOODWIN.
MAGIC LANTERN OR OTHER BURNER.

No. 555,947.

Patented Mar. 10, 1896.

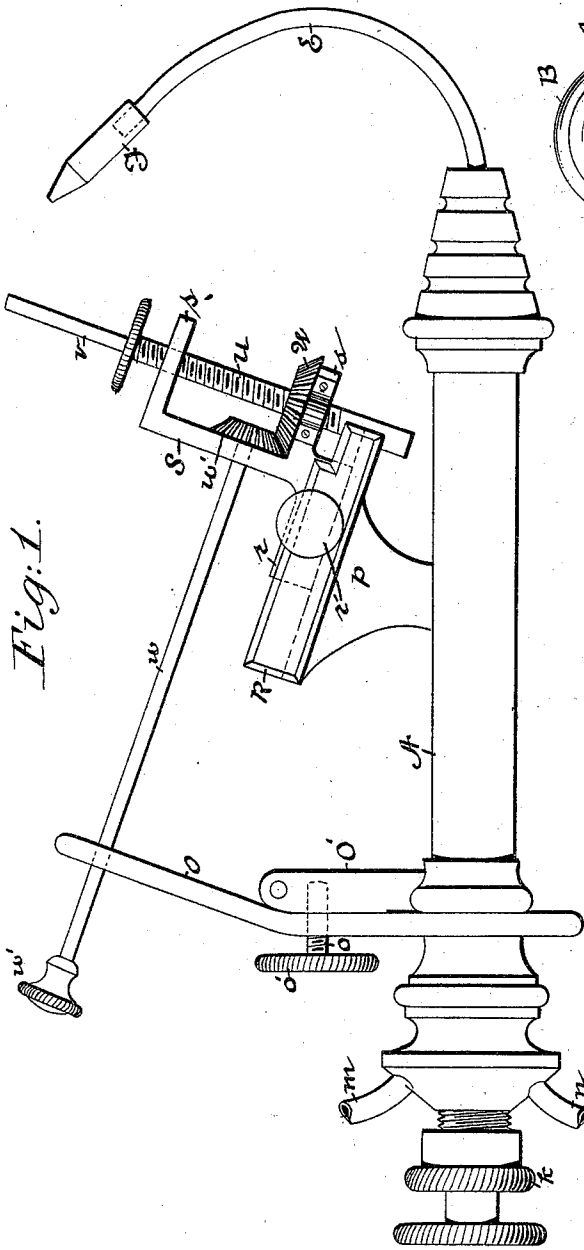


Fig. 1.

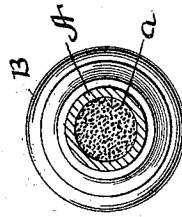


Fig. 3.

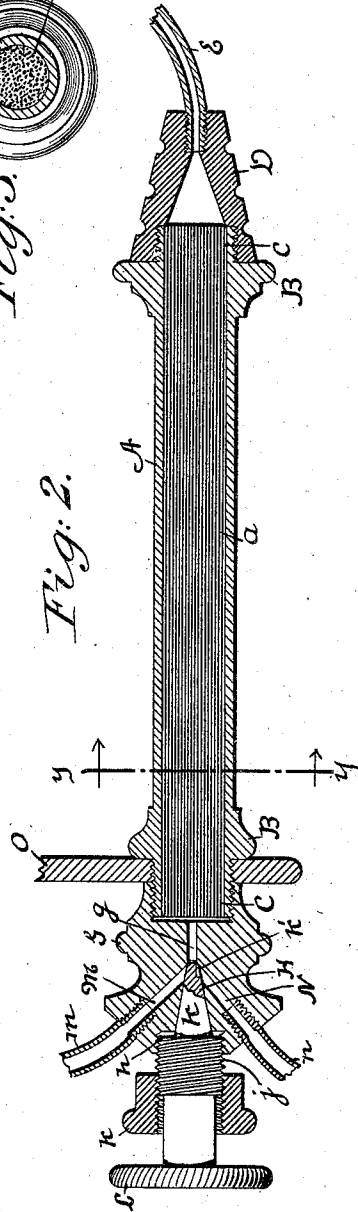


Fig. 2.

WITNESSES:

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THOMAS GOODWIN, OF BILTON, ENGLAND.

MAGIC-LANTERN OR OTHER BURNER.

SPECIFICATION forming part of Letters Patent No. 555,947, dated March 10, 1896.

Application filed April 17, 1895. Serial No. 546,101. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GOODWIN, a subject of the Queen of Great Britain, and a resident of Bilton, county of Warwick, England, have invented certain new and useful Improvements in Magic-Lantern or other Burners, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which
10 similar letters of reference indicate corresponding parts in all the figures.

This invention relates to lime-light jets or burners for magic lanterns, and has for its object to provide a simple, cheap, readily-constructed and perfectly-operating device of this character, a further object being to provide a barrel for this and other purposes which will be flame-proof.

The invention consists in the novel construction and arrangement of parts hereinafter fully described.

Referring to the drawings, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a longitudinal section of the
25 body portion thereof. Fig. 3 is a section on the line *y y* of Fig. 2.

In the practice of my invention I construct a brass tube or barrel A, packed tightly from end to end with strips or pieces of fine copper wire *a*, and at or near each end of the barrel are formed annular heads or shoulders B, outside of which at each end is a screw-threaded extension C. To one of the screw-threaded ends C is secured a hollow conical attachment
35 D by means of a screw-thread in the interior of its base, and to the apex or outer end thereof is similarly secured a curved discharge or burner tube E, having at its free end a discharge-nipple F. At the other or front end of the tube or barrel A is secured a head G,
40 having a central longitudinal bore *g*, the outer end of which is enlarged, forming a conical valve-seat H, at the outer end of which is formed a chamber *h*, the inner side walls of which are screw-threaded to receive a screw-threaded plug J, on which is formed at its inner end a conical valve K, adapted to be seated on the valve-seat H. Mounted upon the plug J is a set-nut *k*, and the outer
45 end of the plug is provided with a milled head or plate L, by which the plug and valve are operated. Communicating with the cen-

tral bore *g* in the head G is a diagonally-arranged bore M, with which is connected an oxygen-tube *m*, and diagonally opposite is a
55 similar bore N, with which communicates a hydrogen-tube *n*. As thus constructed the valve K, when closed, completely cuts off the supply of oxygen, but a small groove *k'*, formed in the end of the valve or in the head
60 G, will permit the passage of sufficient hydrogen to maintain the light, and the thread on the plug J is of such pitch as to open the valve with half a turn or less.

In front of the head G on the barrel A is
65 mounted a plate or arm O, secured to a standard O' by a screw *o*, having a milled head *o'*, and upon the central piston of the barrel A is a bracket P, secured thereto or formed thereon, having two side plates R, but one of
70 which is shown and between which is the adjustable slide or base *r* of the frame or bracket S, which is held in place by a set-screw *r'*.

The frame S is provided with forwardly-directed arms *s*, through which passes a screw-
75 threaded rod U, on which is mounted a beveled gear-wheel W, which gears with a corresponding beveled gear-wheel W', mounted on the end of a rod *w*, which passes through the back of the frame S, and also through the
80 arm O, and is provided at its outer end with a milled head *w'*, by which the rod and beveled gear-wheels are operated. The beveled gear-wheel is suitably arranged on the rod *u*, so that said rod may operate freely therein
85 during the adjustment thereof, and for this purpose said gear-wheel may be threaded internally.

The screw-threaded rod U carries at its upper end the lime stick or pencil V, and independent means may be provided, if desired,
90 to vertically adjust said pencil in the rod U, said rod being hollow or provided with a cavity in its upper end. These elements of construction, however, form no part of this invention, and are not shown.

The operation will be readily understood in view of the foregoing description, taken in connection with the accompanying drawings. The frame or bracket S is adjustable on its
100 support P and may be held in any desired position by the set-screw *r'*, the rod *w* sliding freely in arm O to admit of this action. The rod N carrying the lime stick or pencil can

be turned and vertically adjusted by operating the rod *w*, as will be readily understood, and it will also be understood that by operating the valve *K* by means of the milled head *L* the supply of oxygen can be cut off at any time, or regulated to any desired extent, as may also the hydrogen supply, it being understood, of course, that both the oxygen and hydrogen supply pipes *m* and *n* are provided with independent valves. (Not shown.) As thus constructed, however dangerous the gases employed may be, there is no danger of an explosion, for the reason that no flame or flame-jet can pass through the barrel *A*, packed longitudinally with the fine, copper wire, as described. The supply of gas may be evenly regulated, and if the hydrogen supply is too great by simply moving the cut-off valve the supply thereof may be readily adjusted to the desired extent.

My improved burner gives a steady and brilliant light, the packing in the barrel *A* being in itself a perfect regulator, and it forms a perfect dissolving apparatus for lantern or similar devices, as the oxygen supply can be cut off instantly, if desired, and immediately turned on again by simply moving the milled head *L*, which operates the valve *K*. It is evident that any kind of gas may be employed in this burner, and it is not limited to the use of hydrogen and oxygen, as herein described.

Having fully described my invention, its construction and operation, I claim, and desire to secure by Letters Patent, the following:

1. The combination of a tube or barrel packed with fine copper wire, annular heads secured on each end thereof and provided

with screw-threaded extensions, a conical attachment on one extension, a discharge-tube secured on said attachment, a head *G* arranged on the other extension, said head having a longitudinal bore enlarged at its outer end and forming a conical valve-seat, a chamber at the outer end of said valve-seat, a plug secured in said chamber and having a conical valve on the inner end thereof to fit into the valve-seat, a set-nut mounted on said plug, and means for supplying hydrogen and oxygen to the tube adapted to be regulated by said valve, substantially as described.

2. The combination of a tube or barrel having a discharge-tube connected to one end thereof, a threaded extension on the other end, a head arranged on said extension and having a central longitudinal bore enlarged at one end to form a valve-seat and a chamber *h*, a plug secured in said chamber provided on its inner end with a valve adapted to fit into said seat, a set-nut to adjust said plug and valve, diagonally-arranged bores in opposite sides of the head one of which is adapted to be closed or opened by the valve, and a groove in the end of the valve adapted to permit a supply of hydrogen from the other bore to enter the tube, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 4th day of March, 1895.

THOMAS GOODWIN.

Witnesses:

CHARLES HUMPHRIES,
ERNEST LOCKLEY JONES.