

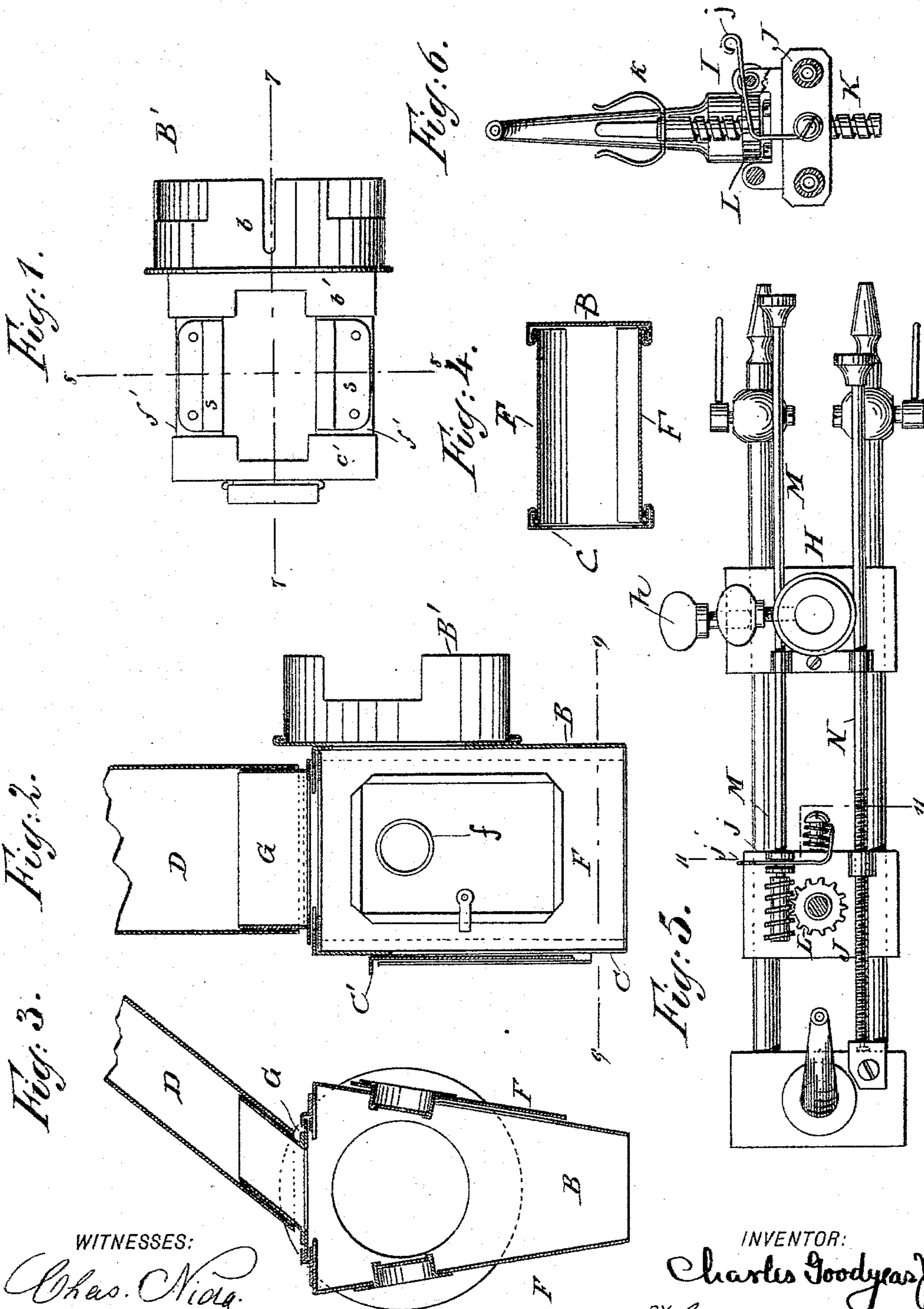
(Model.)

C. GOODYEAR, Jr.

LIME JET AND HOOD FOR MAGIC LANTERNS.

No. 494,853.

Patented Apr. 4, 1893.



WITNESSES:

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CHARLES GOODYEAR, JR., OF NEW YORK, N. Y.

LIME-JET AND HOOD FOR MAGIC LANTERNS.

SPECIFICATION forming part of Letters Patent No. 494,853, dated April 4, 1893.

Application filed April 23, 1892. Serial No. 430,416. (Model.)

To all whom it may concern:

Be it known that I, CHARLES GOODYEAR, Jr., of New York city, New York, have invented new and useful Improvements in Lime-Jets and Hoods for Magic Lanterns, of which the following is a description, reference being taken to the accompanying drawings, forming a part of this patent.

This invention relates to a lime jet and hood for use with such lanterns and for similar purposes, but peculiarly adapted to the lantern set forth in an application for patent filed by me on the 23d day of April, 1892, and serially numbered 430,417, and is embodied in the apparatus and its parts constructed, arranged, combined, and used, substantially in the manner hereinafter described, illustrated and claimed.

In the drawings, Figure 1 is a plan view of my hood with the sliding top and chimney removed. Fig. 2 is a longitudinal section of my hood as taken on line 7—7 of Fig. 1. Fig. 3 is a transverse section taken on the line 8—8 of Fig. 1. Fig. 4 is a horizontal section taken as on line 9—9 of Fig. 2. And Figs. 5 and 6 show details of my jet.

In the drawings like letters of reference indicate like parts.

For the purpose of making lanterns as compact and as light in weight as possible many attempts have been made to construct a light-tight hood for the use with a lime light that may be at once as small as the jet will permit, as firm and strong as needed, and, at the same time, capable of being neatly packed away in the least possible space. I have accordingly invented a jet and hood therefor, that enable me to accomplish all these requirements and at the same time admit of a ready turning and adjustment of the lime without danger of burning the hands of the operator.

My hood is formed of a fine quality of thin sheet iron neatly joined together, and is so light that it may be carried by the condenser lens case as indicated in the patent application hereinbefore referred to. It consists of a front piece, B, two side pieces F, a back piece C, a top piece G, and a chimney D. The front piece B is provided with the circular casing B' that is intended to surround the lens case. This part may have a slot *b* in it, whereby it may

be secured by thumb screws or in other way to the lens case, and may be indented and shaped according to the shape of the lens case. It will be seen that by this mode of attachment a slight longitudinal adjustment of the hood upon the lens case is possible.

The front piece B and the back piece C are of keystone shape in order to give as much area as possible in front of the light while contracting the lower part of the hood. This shape is of great importance as it allows the sliding guides of the lantern frame to pass freely at either side of the hood and also enables me to provide, by a slanting chimney D, for the carrying off of heated gases, in each lantern, from a point directly over the lime, which has heretofore been found almost impossible where several lanterns are superposed. The back piece C is provided with a slide C' which permits the introduction of the jet, and both front and back are provided with the top flanges *b'*, *c'*, which prevent the side pieces from rising out of place and partially form a top to the hood. The side pieces are interchangeable and alike, saving that one is provided with a door as shown, which carries the window *f*, while the other has the window let directly into the side piece. The lateral edges of the side pieces and of the front and back pieces are fitted together with the co-operating sliding joints as shown in Fig. 4. The sides may be fitted to the front and back pieces and slid up into position until the flanges *f'*, with which each is provided, come against the flanges *b'* and *c'*. Upon the flanges *f'* are carried the slides S, within which the rectangular top piece G slides into position as indicated in Figs. 2 and 3. When so placed, the front and rear ends of the top piece lie above the flanges *b'* and *c'*, as shown in Fig. 2 and serve to lock the several parts together. The top piece is provided with a chimney support *g*, upon which the chimney D may be fitted.

The interchangeability of my side pieces is of great value when the lanterns are to be used side by side or in cramped positions. It will be clear that the chimney when made slanting, as illustrated, may be turned to either side at will by reversing the position of the top piece G.

I will now describe my calcium light holder and jet whereby in conjunction with my hoods, I attain great compactness without too much heating. The jet and the oxygen and hydrogen tubes and cocks are arranged in well known manner, the cocks being removed to considerable distance from the jet. The tubes slide in the supporting head H in which they may be held by a thumb screw *h*, and form guides for the traveling cross head J. This cross head J may be adjusted, for regulating the light, by the long screw adjustment N running in bearings upon the head H and operated from the end which is remote from the jet and projects from the hood when in use.

Upon the cross head J is carried the vertical spline screw shaft K which terminates at its upper end in the clamp *k* for the lime. A spur gear L surrounds this shaft and is keyed in the spline within it. To prevent vertical displacement of the gear L suitable guides or collars may be provided. It will now be seen that rotation of the gear L will cause the shaft K to rotate and thereby be fed longitudinally through its bearings.

So far, I do not claim this lamp device as broadly new. My novel feature lies in the adjustment by which the shaft K is operated. This adjustment consists in the worm carried by the adjusting shaft M. The shaft M has bearings on the head H and the cross head J through which it is free to slide longitudinally.

Within the bearing upon the cross head J is the transverse channel *j* which permits the spring key *j'* to bear upon and within an annular way in the shaft M. In this manner the key *j'* effectually prevents axial play through the bearings and thereby keeps the worm in gear with the spur pinion that actuates the shaft K. The spring key *j'* may be readily raised and the shaft M advanced

through the bearing, thereby throwing the worm out of gear and enabling the operator to directly and quickly twist up or down the shaft K for putting in and adjusting new limes.

It will now be seen that the arrangement of my lamp and hood is such that an exceedingly compact apparatus is produced which is at the same time light, tight, well ventilated, easily manipulated, and which may be taken apart and packed in a very small space.

Having now set forth my invention, I claim as my own and desire to secure by these Letters Patent the following:

1. A lime jet provided with a sliding cross head J, a vertical screw threaded spline shaft carrying the lime holder, a worm, an operating shaft therefor having an annular key way, a bearing upon the said cross head J, and a key *j'* adapted to fit into the said annular way, in combination with a knockdown hood of keystone shape so formed to fit snugly at the sides of the said jet and to permit considerable space in its upper part, substantially as, and for the purposes set forth.

2. A knockdown hood of keystone shape for use as described, the several sides and parts of the said hood being detachably secured together by sliding joints, substantially as set forth.

3. For use in a lime jet, a lime rotating apparatus actuated by a worm and gear, a shaft for the said worm provided with an annular key way, bearings for the said shaft, and a spring key fitted to the said key way, substantially as, and for the purposes set forth.

In testimony whereof I have hereunto set my hand this 12th day of February, 1892.

CHARLES GOODYEAR, JR.

Witnesses:

G. M. PLYMPTON,
HAROLD BINNEY.